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THE

TRANSACTIONS

OF THE

AMERICAN

MEDICAL ASSOCIATION.

INSTITUTED 1847.

VOL. VII.

NEW YORK:
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1854.

BOSTON MEDICAL
JUL 30 1962
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By a Resolution passed at the Session of 1851, the Committee of Publication were instructed to print conspicuously, at the beginning of the volume of the *Transactions*, the following disclaimer:—

"The American Medical Association, although formally accepting and publishing the Reports of the various Standing Committees, holds itself wholly irresponsible for the opinions, theories or criticisms therein contained, except when otherwise decided by special resolution."

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MINUTES

OF THE

SEVENTH ANNUAL MEETING

OF THE

AMERICAN MEDICAL ASSOCIATION,

HELD IN THE CITY OF ST. LOUIS, MAY, 1854.

St. Louis, May 2d, 1854, *Morning Session.*

THE Association met in Verandah Hall, at 11 o'clock, A. M., the Senior Vice-President, Dr. USHER PARSONS, of Rhode Island, presiding, in the absence of the President, Dr. JONATHAN KNIGHT, of Connecticut.

Upon invitation extended to the Vice-Presidents and Ex-Presidents of the Association, Dr. H. K. FROST, of South Carolina, Vice-President, and Dr. R. D. MUSSEY, of Cincinnati, Ex-President, took seats upon the platform.

The Secretary, Dr. E. S. LEMOINE, of St. Louis, read letters from Dr. KNIGHT, the President, and Dr. BEADLE, of New York, the Senior Secretary, deeply regretting that matters of urgent importance would prevent them from attending the Session of the Association at St. Louis, and uniting with its members there, professionally and socially. They return most hearty thanks for the honors which have been repeatedly conferred upon them by this body, and express the warmest attachment to the Association, and coöperative interest in all its objects, for the present and the future.

Dr. JAMES R. WASHINGTON, Chairman of the Committee of Arrangements, briefly and cordially welcomed the delegates and members of the Association, expressing the sincere pleasure of

the Profession of the city of St. Louis, in the opportunity afforded them of receiving and entertaining their brethren from the different parts of the Union. He concluded by reading a list of the members who had appeared and registered their names—those present, at the suggestion of Dr. March, of Albany, rising and answering as they were severally called.

The Vice-President, Dr. Parsons, returned thanks, in the name of the Association, for the "kind welcome" which had been extended, and for the ample accommodations provided. He then announced that the meeting was duly organized, and stated the business first in order.

[The following list comprises the names of all the delegates and members in attendance, as reported at various stages of the meeting.]

MAINE.

State Medical Association,	Joseph H. Estabrook, Charles Millett.
Lewiston Falls Med. Assoc.,	Sylvester Oakes.
Portland Medico-Chirurg. Soc.,	Sumner B. Chase.

NEW HAMPSHIRE.

State Medical Society,	John O. French.

MASSACHUSETTS.

Massachusetts Medical Society,	John Green, A. A. Gould, John Flint, Ephraim Lovell, Benjamin F. Heywood, Alfred Hitchcock, James W. Stone, Charles D. Homans, Francis Minot.
Worcester Co. Medical Society,	Joseph N. Bates.
Boston Soc. for Med. Imp't,	J. B. S. Jackson, Francis Minot.
Massachusetts General Hosp'l,	D. H. Storer.

RHODE ISLAND.

Rhode Island Medical Society,	Usher Parsons.

CONNECTICUT.

Connecticut Medical Society,	P. G. Rockwell, Nathan B. Ives.
Med. Institution of Yale Col.	Charles Hooker.

NEW YORK.

State Medical Society,	Thomas W. Blatchford, R. L. Allen.
New York County Med. Soc.	James L. Phelps, Henry S. Downs.
Med. Assoc. of Southern Central New York,	S. H. French, Joel E. Hawley.
Albany Medical College,	Alden March.
Geneva Medical College,	Joel E. Hawley.
New York Academy of Med.	Lewis A. Sayre.
Col. of Phys. and Surg., N. Y.	Chandler R. Gilman.
New York Medical College,	E. H. Davis.
University of Buffalo,	James P. White.
Wayne Co. Medical Society,	A. McIntyre.
Herkimer Co. Medical Society,	Caleb Budlong.

NEW JERSEY.

State Medical Society,	L. A. Smith, F. S. Schenck.
Camden District Med. Soc.	Richard M. Cooper.
Essex District Medical Society,	G. R. Chetwood.

PENNSYLVANIA.

State Medical Society,	John L. Atlee, John D. Ross.
University of Pennsylvania, Med. Department,	Joseph Leidy, Joseph Carson.
Med. Department of Pa. College,	J. B. Biddle.
Medico-Chirurgical College,	Samuel H. Meade, J. B. Bell.
Philadelphia Co. Med. Society,	R. La Roche.
Pennsylvania Hospital,	George W. Norris.
Phil. Assoc. for Med. Instruc.	Francis West.
College of Physicians of Phil.	J. B. Biddle.
Northern Med. Assoc. Phil.	N. L. Hatfield.
Chester Co. Medical Society,	Isaac Thomas.
Montgomery Co. Med. Society,	Wm. Corson.

Lancaster City & Co. Med. Soc.	SAMUEL KENEAGY, JOHN REAM, SAMUEL PARKER, ISAAC C. WEIDLER, P. CASSIDY, O. S. MAHON.
Permanent Member,	WM. KEITH.

VIRGINIA.

Medical Society of Virginia,	ADAM SPITLER.

SOUTH CAROLINA.

Medical Society of S. Carolina,	JOHN L. DAWSON, WM. T. WRAGG, WM. H. FORD, J. FORD PRIOLEAU.
South Carolina Med. Assoc.	ROBERT S. BAILEY, WM. C. RAVENEL.
Faculty Med. Col. South Car.	HENRY R. FROST, THOMAS G. PRIOLEAU.

ALABAMA.

State Medical Society,	S. W. CLANTON.

MISSISSIPPI.

Jefferson Co. Medical Assoc.	THOMAS J. GRAFTON.

LOUISIANA.

State Medical Society,	E. D. FENNER.

TENNESSEE.

State Medical Association,	FRANK A. RAMSEY, H. M. CLEMENTS, J. B. LINDSLEY.
Montgomery Co. Med. Society,	E. R. DABNEY, J. L. C. JOHNSON.
Memphis Medical College,	LOUIS SHANKS, A. P. MERRILL.
Med. Dep. Univ. Nashville,	WILLIAM K. BOWLING, PAUL F. EVE.
Nashville Medical Society,	J. B. LINDSLEY.

Sumner Co. Medical Society,	Wm. D. Haggard.
Memphis Medical Association,	C. B. Guthrie.
Member by Invitation,	George R. Grant.

KENTUCKY.

Med. Dep. of Transylv'a Univ.	John R. Allen.
University of Louisville,	Samuel D. Gross.
Kentucky Medical School,	R. J. Breckinridge.
U. S. Marine Hos., Louisville,	J. W. Scott, John Magoffin.
Permanent Member,	Walter A. Norwood.
Member by Invitation,	O. G. Bullitt.

OHIO.

Cincinnati Medical Society,	W. T. Taliaferro, L. D. Waterman, M. B. Wright, H. B. Musgrave.
Medico-Chirurg. Soc. of Cin.	Robert R. McIlvaine, O. M. Langdon, John J. Arons, Wm. Clendenin, C. B. Hughes.
Miami Medical College,	R. D. Mussey, George Mendenhall.
Wayne Co. Medical Society,	W. W. Taggart, J. D. Robison.
Montgomery Co. Med. Society,	Israel A. Coons, Joshua Clements.
State Medical Association,	Amos C. Smith.
Hardin Co. Medical Society,	J. E. Nagle.
Belmont Co. Medical Society,	J. T. Updegraff.
Starling Medical College,	S. M. Smith.
Permanent Member,	Charles Grant.
Member by Invitation,	John W. Bond.

INDIANA.

Evansville Medical Society,	Wm. H. Byford, Daniel Morgan.
Vincennes Medical Society,	Willis W. Hitt.
Member by Invitation,	Edward Murphy.
Permanent Member,	J. L. Mothershead.

ILLINOIS.

State Medical Society,	E. S. Cooper, Samuel Thompson, Rudolphus Rouse, H. A. Johnson, Wm. W. Welch, Samuel Long, Wm. Henry Davis, S. A. Paddock.
Rush Medical College,	Daniel Brainard, W. B. Herrick.
Cook Co. Medical Society,	Wm. C. Quigley, James Bloodgood, A. B. Palmer.
Knox Co. Medical Society,	James Bunce, J. W. Spalding.
McLean Co. Medical Society,	George W. Stipp, Thomas P. Rogers.
St. Clair Co. Medical Society,	John B. Gray, James A. Roman.
Macon Co. Medical Society,	S. Y. Baldwin, S. T. Trowbridge.
Pekin Medical Society,	Joseph C. Hinsey.
Madison Co. Medical Society,	George T. Allen.
Winnebago Co. Medical Society,	Charles W. Clark.
Stark Co. Medical Society,	Hiram Nance.
Æsculapian Med. Soc., Law'lle.	Thomas D. Washburn.
Alexander Co. Medical Society,	Wm. Wood.
Peoria City Med. & Surg. Soc.	E. M. Colburn.
La Salle Co. Medical Society,	Joseph Stout.
Hos. Sisters of Mercy, Chicago,	N. S. Davis.
Adams Co. Medical Society,	Adams Nichols, Adam Stahl, J. N. Ralston.
Morgan Co. Medical Society,	David Prince.
Permanent Members,	W. S. Maus, W. C. Harrington, M. Shepherd.
Members by Invitation,	W. S. Evans, Joseph King, U. P. Golliday,

Members by Invitation,	L. G. Thompson, S. W. Kincaid, D. Skilling, P. G. Corkins, H. W. Kendall, Wm. R. Robinson, J. Phillips, J. K. Sharon, —— Linn.

MISSOURI.

State Medical Association,	George Engleman, Thomas Reyburn, David C. Tandy, John Barnes, S. Pollak, L. P. Perry, H. A. Prout, David M. Cooper, Stephen W. Adreon, Alexander Marshall, J. W. Wilson, H. Schoenich, W. P. Boulware, Isaac P. Vaughan, Hammond Shoemaker, John Laughton, Wm. A. Jenkins, Charles Quarles Chandler.
St. Louis Medical Society,	S. Gratz Moses, George S. Walker, Wm. S. Edgar, A. J. Coons, E. S. Lemoine, James R. Washington, F. E. Baumgarten, Wm. S. Golding.
Med. Dep. St. Louis Univer.	R. S. Holmes, Wm. M. McPheeters.
Med. Dep. Univer. Missouri,	John S. Moore, Joseph N. McDowell.

St. Louis Medical Institute,	J. S. B. Alleyne, John O'Fallon Farrar.
St. Louis German Med. Soc.	Alfred Behr, Adolphus Wislizenus.
St. Louis City Hospital,	T. Y. Bannister, John B. Johnson.
St. Louis Hospital,	M. L. Linton, Charles A. Pope.
St. Louis Co. Hospital,	Richard F. Barret, George Penn.
Biddle Lying-in Hospital.	Charles L. Boisliniere, M. M. Pallen.
Franklin Co. Medical Society,	J. W. B. Reynolds, Pierce N. Butler.
La Fayette Co. Medical Soc.	John B. Alexander, J. F. Atkinson.
O'Fallon Dispensary,	Charles W. Stevens.
U. S. Mar. Hospital, St. Louis,	George Johnson.
State Prison Hospital,	Wm. A. Currey.
St. Louis Co. Lying-in Hospital,	John M. McKeage.
St. Louis Co. Insane Hospital,	Joseph Bryan.
St. Louis Quarantine Hospital,	F. P. Leavenworth.
Disp'y of the University of Mo.	Abner Hopton.
Pike Co. Medical Society,	John C. Welborn.
Randolph Co. Medical Society,	R. K. Lewis.
Jackson Co. Medical Society,	John H. McMurry.
Cooper Co. Med. Society,	George C. Hartt.
Chariton Co. Med. Society,	M. J. Rucker.
Permanent Members,	A. Litton, Charles W. Hempstead, William Webb.
Members by Invitation,	John Kenny, G. W. Campbell, O. Lumaghi, E. McGintie, A. A. Ryley, State Deaf and Dumb Asylum, H. Christopher, A. F. Barnett, J. J. Clark, M. Martin.

Members by Invitation,	W. H. Cobb, H. C. Wright, ——— Brent, ——— Wilcox, S. B. Lorance, L. D. Smith, W. C. Williams, J. C. Woodson.

MICHIGAN.

State Medical Society,	A. B. Palmer, J. H. Beech.
Detroit Medical Society,	William Brodie.
South Western Med. Assoc.	Andrew Murray.

IOWA.

State Medical Society,	John D. Elbert, Thomas Siveter, John H. Rauch.
Med. Dep. Iowa University,	D. L. McGugin, E. R. Ford.
North Western Med. Society,	John F. Ely.
City Hospital, Keokuk,	Edward A. Arnold.
Clinton Co. Medical Society,	N. Van Patten.
Keokuk Medical Society,	J. C. Hughes.
Permanent Member,	John F. Sanford.
Member by Invitation,	——— Walker.

WISCONSIN.

State Medical Society,	John B. Dousman, John K. Bartlett.
Western Medical Society,	George D. Wilber.

MINNESOTA.

Minnesota Medical Society,	John H. Murphy.

CHEROKEE NATION.

Cherokee Medical Society,	R. D. Ross.

UNITED STATES ARMY AND NAVY.

Clement A. Finley, U. S. A.
A. N. McLaren, U. S. A.
Ninian Pinkney, U. S. N.

Dr. D. F. Condie, of Philadelphia, not being in attendance, his report, as Treasurer, and the report of the Committee on Publication, of which he is Chairman, were read by the Secretary. They were accepted, and ordered to be printed; and certain resolutions appended to the report of the Committee on Publication, were, on motion of Dr. Atlee, of Pennsylvania, laid on the table for future action.

Dr. White, of New-York, moved that, in accordance with custom, a recess of fifteen minutes be now taken, to allow the delegations from the several States represented, to select one from their number, respectively, to comprise a committee for the nomination of officers for the ensuing year. The motion prevailed.

At the expiration of the recess, the meeting was called to order by Dr. H. R. Frost, Vice President. The Nominating Committee was then announced, and confirmed, as follows:—

Charles Millett, Maine,
D. Humphreys Storer, Mass.
Usher Parsons, Rhode Island,
P. G. Rockwell, Connecticut,
James P. White, New York,
George R. Chetwood, N. Jersey,
R. La Roche, Pennsylvania,
Adam Spitler, Virginia,
Thos. G. Prioleau, S. Carolina,
S. W. Clanton, Alabama,
E. D. Fenner, Louisiana,
T. G. Grafton, Mississippi,
J. Berrien, Lindsley, Tennessee,
Robt. J. Breckenridge, Ky.
O. M. Langdon, Ohio,
W. W. Hitt, Indiana,
Wm. B. Herrick, Illinois,
Thomas Reyburn, Missouri.
Wm. Brodie, Michigan,
Thomas Siveter, Iowa,
J. B. Dousman, Wisconsin,
J. H. Murphy, Minnesota.

On motion of Dr. Atlee, the hours of session of the Association were fixed at from 9 o'clock, A. M. till 1, P. M., and from 3 to 6, P. M.

Dr. Charles Hooker, of Connecticut, moved that the Nominating Committee be instructed to recommend a place for the next annual meeting of the Association. Carried.

An invitation was received from Philadelphia, through Dr. J. B. Biddle, to hold the next meeting in that city. A similar invitation from Detroit was presented by Dr. Brodie.

Dr. Brainard, of Illinois, offered the following resolution:—

Resolved, That hereafter, the American Medical Association will hold its meetings alternately in the Southern, Northern, and Western Divisions of the United States.

Dr. BARNES, of St. Louis, moved to lay the resolution on the table; and this motion, after some discussion, and calls for adjournment, finally prevailed.

On motion of Dr. DAVIS, of Chicago, the Association adjourned, to meet at 3 o'clock.

Afternoon Session.

The Association convened at 3 o'clock; Dr. HENRY R. FROST, Vice President, presiding.

The CHAIR announced that the next proceeding in order, would be the reading of the usual annual address of the President, and that Dr. PARSONS, of Rhode Island, the Senior Vice-President, would, in the absence of the President, perform that duty.

Dr. PARSONS then took the Chair and addressed the Association.

Dr. FROST having resumed the Chair,—on motion of Dr. ATLEE, of Pennsylvania, the thanks of the Association were returned to Dr. PARSONS for his address, which was then referred to the Committee on Publication.

At a special meeting of members of the Association, held in New York city, in reference to the disastrous event at Norwalk, Connecticut, in May, 1853, which resulted in the death of so many valued members of the Association, a committee was appointed "to devise some suitable method of commemorating the event, and the worth and professional character of our lamented associates, and to recommend said plan to the next annual meeting of the Association." A report from Dr. JOSEPH M. SMITH, of New York, Chairman of that Committee, was read by the Secretary.

The Committee think the most appropriate method of carrying into effect the objects had in view in their appointment, would be the preparation of a narrative of the event, together with a brief, though perfect, biographical and professional sketch of each individual; and that such narrative and biographical memoirs be published in the next volume of the Transactions of the Association. The Committee have not been able to procure all the materials necessary for preparing the memoirs, and therefore "respectfully recommend to the Association, the adoption of the plan proposed, and suggest that they be authorized to complete the narrative and memoirs in question, and to transmit them to the Committee of Publication."

On motion of Dr. BRAINARD, of Chicago, the report was received, and the recommendations adopted.

A letter was received from Dr. JOHN G. ADAMS, a permanent member, to Dr. BEADLE, one of the Secretaries, dated Marseilles, March 19th, 1854, stating that he had presented the sixth volume of the Transactions of the Association to the Imperial Academy of Medicine, at Paris; that it was received with favor, and a committee, with M. Velpeau as Chairman, appointed for examination and report. He had also promised to procure for presentation the five previous volumes, and felt assured that the Academy would be pleased at "establishing a correspondence with our Association."

On motion, the letter was received, and the volumes ordered to be sent, as requested.

The Secretary read a communication from the New Hampshire Medical Society, expressing the opinion of that Society, that no delegate should be admitted to membership in the American Medical Association from a Medical Society which numbers among its members any person or persons who adopt, as their system of practice, any form of empiricism.

Dr. MCILVAINE, of Ohio, inquired in regard to the volumes of Transactions which, at the last meeting of the Association, were directed to be sent to the American Medical Society, in Paris.

Dr. ATLEE, of Pennsylvania, in reply, stated that the volumes had recently been forwarded, and gave reasons for the delay which had occurred.

Dr. MCILVAINE then gave a brief account of the Society above-mentioned, its composition, its objects, and its mode of proceedings. He stated that the Society had an agent residing in New York city—M. Bossange, 134 Pearl street—to whom all packages and communications, intended for the Society, should be sent; and concluded by laying on the table a memorial from the Society to the American Medical Association, in relation to the necessity of reform in medical instruction in the United States, and proposing a plan for that purpose. The memorial was signed, in pencil, by

Dr. HAMMER, St. Louis,
Dr. MURPHEY, Cincinnati, } *Committee.*

A motion, made by Dr. GROSS, of Kentucky, was amended by Dr. MCPHEETERS, and adopted, as follows:—

Resolved, That it be recommended to all future Committees of

Arrangements, that they dispense with costly and extravagant entertainments.

Dr. GROSS also proposed the following preamble and resolution, which, involving an amendment to the constitution, lie over until the next annual meeting:—

Whereas, It is of great importance to the harmony and good feeling of this Association, that its presiding officer should be fully acquainted with parliamentary usages, and the mode of presiding over deliberative assemblies; therefore,

Resolved, That that part of the constitution which relates to the election of officers be so amended as that the election shall take place immediately before the adjournment of each meeting, instead of immediately after its commencement.

The Committee on Nominations appeared, and, through the Chairman, Dr. JAMES P. WHITE, of Buffalo, reported the following members as officers for the ensuing year:

PRESIDENT,

CHARLES A. POPE, *Missouri.*

VICE-PRESIDENTS,

E. D. FENNER, *Louisiana*, N. S. DAVIS, *Illinois*,
WILLIAM WRAGG, *South Carolina*, JOHN GREEN, *Massachusetts.*

SECRETARIES,

E. S. LEMOINE, *Missouri*, FRANCIS WEST, *Pennsylvania.*

TREASURER,

D. FRANCIS CONDIE, *Pennsylvania.*

On motion, the report was received and unanimously adopted, and the gentlemen nominated declared to be the Officers of the Association for the ensuing year.

DRS. STORER, of Massachusetts, WHITE, of New York, BRAINARD, of Illinois, and EVE, of Tennessee, appointed a committee for the purpose, then introduced to the Association, and conducted to their appropriate seats, the officers elect, with the exception of the President, Dr. POPE, who was not present.

Dr. REYBURN informed the Association that Dr. Pope's absence is occasioned by sickness in his family.

Dr. Fenner, the First Vice-president, took the chair, expressed his regret for the absence of the President, and, on behalf of the newly-elected officers, briefly returned thanks for the honor which had been conferred by the Association.

The Chairman stated that, owing to an informality in transmitting the resolution instructing the Nominating Committee to recommend a place for the next annual meeting, the Committee had not acted upon that subject.

On motion of Dr. Palmer, of Michigan, it was unanimously—

Resolved, That the next annual meeting of the Association be held in the city of Philadelphia.

The resolutions appended to the report of the Committee on Publication were called up, and read by the Secretary, as follows:—

Resolved, That the sum of three dollars, annually, be assessed upon each of the delegates to the sessions of the Association, as well as upon each of its permanent members, for the purpose of raising a fund to defray the expense of printing the Transactions. The payment of this assessment shall be required of the delegates and members in attendance upon the sessions of the Association, previously to their taking their seats and participating in the business of the session; and of all others, on or before the first day of September in each year.

Resolved, That each delegate and member who has paid his annual assessment in accordance with the terms of the above resolution, shall be entitled to receive a copy of the printed Transactions of the session.

Resolved, That the name of no one shall be inserted or continued on the list of permanent members of the Association, who shall refuse or neglect to pay his annual assessment in accordance with the terms of the first resolution.

Resolved, That it shall be the duty of the Committee of Publication to fix the price at which the printed Transactions of each session will be furnished to others than delegates and members; provided, that in no case shall the said price be less than three dollars.

Resolved, That the delegates to the Association be requested to appoint committees, at one or more central points within their respective States, for the purpose of aiding the Committee of Publication in procuring subscribers, and in distributing the printed volumes of Transactions to said subscribers, as well as to

the members of the Association residing within the neighborhood of the said committees, respectively.

Dr. March, of Albany, moved the adoption of the resolutions.

After discussion by several members, Dr. Gould, of Massachusetts, with a view to amendments, moved that the resolutions be taken up and voted upon separately. The motion was not sustained.

Dr. Biddle, of Philadelphia, proposed an amendment to the third resolution, by the addition of the following clause: "But it shall be the duty of the Treasurer, before erasing the name of any member, to issue a circular, informing him of his indebtedness."

The motion was carried; and the resolutions, as amended, were adopted.

The following communication was read, and laid on the table till the next annual meeting:—

At a regular meeting of the Detroit Medical Society, held April 20th, 1854, the following resolution was unanimously adopted:—

"*Resolved*, That the delegates from this Society to the meeting of the American Medical Association, to be held at St. Louis, May 2d, 1854, tender the invitation of this Society to the Association to meet in the city of Detroit at their next meeting.

"Edward Batwell, M. D.,
"*Secretary.*"

Dr. John L. Atlee, of Pennsylvania, on behalf of the Committee to procure a stone with a suitable inscription for the monument at Washington, reported that he had adopted, at the suggestion of the lamented Dr. Pierson, of Salem, the design for the stone, representing Hippocrates refusing the presents of the ambassadors of King Artaxerxes, who invited him to go to Persia and succor the enemies of Greece. The sculpture, which is upon Vermont marble, was wrought by Mr. Samuel Beck, a young artist of Lancaster county, Pennsylvania. It is copied from a daguerreotype of Viardot's celebrated picture, presented to Mr. Beck by Miss Abby L. Pierson, daughter of the deceased. The execution of the work is in the highest style of art, and evinces extraordinary talent in the artist.

Dr. Atlee then presented for examination by the members of the Association, daguerreotype copies of both the picture and the sculpture, and solicited further contributions from members; the sum yet required to complete the work being about four hundred dollars.

On motion of Dr. WHITE, of New York, Dr. CHARLES HOOKER, of Connecticut, was appointed Treasurer *pro tem.*, Dr. Condie being absent.

Dr. N. S. DAVIS moved the following resolutions, which were adopted:—

Resolved, That all motions and resolutions made to the Association shall be presented in writing, and signed by the mover.

Resolved, That no member shall be allowed to speak more than fifteen minutes at one time, nor more than once on the same subject, until all have spoken who wish to do so.

The President elect, Dr. POPE, was now introduced to the Association, and conducted to the chair by the appropriate committee.

He briefly and feelingly expressed his thanks for the honor which had been conferred upon him. How unworthy soever, personally, he yielded to none in devotion to, and in a due appreciation of, the lofty and noble profession which we here represent. This honor was not intended for himself, individually, but for the West in general, and especially for Missouri.

Dr. NINIAN PINKNEY, delegate from the United States Navy, on motion of Dr. STORER, of Massachusetts, read a paper expressing thanks to the Association for its aid in bringing about the organization of the Medical Staff of the United States Navy.

A letter was read from the Rev. Wm. G. Elliot, President of the Board of Trustees, inviting the members of the Association to visit, at their convenience, the Missouri Institution for the Education of the Blind. The invitation was accepted.

On motion of Dr. ATLEE, of Pennsylvania, the Committee on Nominations were instructed to appoint the standing committees of the Association.

Dr. JAMES R. WASHINGTON, Chairman of the Committee of Arrangements, made the following report, which was adopted:—

The Committee of Arrangements report, and recommend as members by invitation, Drs. GEORGE R. GRANT, of Tennessee; ED. MURPHY, of Indiana; —— WALKER, of Iowa; J. W. BOND, of Ohio; LUCIUS G. THOMPSON, of Illinois; W. C. WILLIAMS, of Missouri; U. P. GOLLIDAY, of Illinois; and O. G. BULLITT, of Kentucky.

On motion, the Association adjourned, to meet to-morrow morning, at 9 o'clock.

Wednesday, May 3d, Morning Session.

The Association was called to order at 9 o'clock, the President in the Chair.

The minutes of yesterday's proceedings were read, corrected, and adopted.

Dr. JAMES R. WASHINGTON, Chairman of the Committee of Arrangements, reported a list of delegates who had presented their credentials and registered their names since the adjournment; and begged leave to recommend, as members by invitation, Drs. W. C. HARRINGTON, M. M. BANE, H. W. KENDALL, and P. G. CORKINGS, all of Illinois, and Dr. J. C. WOODSON, of Missouri.

The report was accepted, and the recommendation adopted.

On motion, the hour of adjournment for the afternoon was fixed at 4 instead of 6 o'clock, in order to allow the Association to partake of the hospitalities of Col. John O'Fallon.

On motion of Dr. ATLEE, of Pennsylvania, the memorial from the American Medical Society of Paris, was read by the Secretary, and referred to the Committee on Publication.

The President announced that the next business in order was the reading of the reports from the standing committees, and proceeded to call them in the usual order.

Those alone are here noticed, from which reports or answers were received.

Dr. D. F. CONDIE, of Philadelphia,—On the Causes of Tubercular Disease.

Dr. Condie was not present; it was, however, stated that he was not yet prepared to report, and requested to be continued—which request was granted.

Dr. R. S. HOLMES, of St. Louis, appeared and read an abstract of his report On Epidemic Erysipelas. The report was referred to the Committee on Publication.

Dr. GEORGE B. WOOD, of Philadelphia,—On Diseases of Parasitic Origin. Dr. CARSON, of Philadelphia, stated that Dr. Wood desired to be excused from serving on the committee, and moved that his request be granted. Dr. Wood was accordingly excused.

Dr. JOHN L. ATLEE, of Lancaster, Pennsylvania, Chairman of the Committee on the Epidemics of New Jersey, Pennsylvania, Delaware, and Maryland, was not prepared to report, as he was momentarily expecting some additional communications from

other members of his committee, and desired to be passed over. He had appointed Drs. Lewis P. Bush, of Wilmington, Delaware, S. W. Butler, of Burlington, New Jersey, and Francis Donaldson, of Baltimore, as his colleagues for their respective States.

An abstract of the report of Dr. D. J. Cain, of Charleston, Chairman of the Committee on the Epidemics of South Carolina, Florida, Georgia, and Alabama, was presented by Dr. Wragg, of Charleston, who stated that Dr. Cain's report was not ready,—some slight additions yet remaining to be made. He moved that it be referred, when completed, to the Committee on Publication. The motion was adopted.

Dr. W. L. Sutton, of Georgetown, Kentucky, through Dr. F. A. Ramsay, presented a partial report on the Epidemics of Tennessee and Kentucky, and for the last year only. It was referred to the Committee on Publication, and Dr. Sutton's Committee was continued.

Dr. Thomas Reyburn, of St. Louis, Missouri, Chairman of the Committee on Epidemics of Missouri, Illinois, Iowa, and Wisconsin, requested further time, which was granted.

Dr. George Mendenhall, of Cincinnati, Chairman of the Committee on Epidemics of Ohio, Indiana, and Michigan, presented a report, with an abstract, for the years 1852 and 1853. On the motion to refer the report to the Committee on Publication, Drs. Palmer, of Michigan, and Atlee, of Pennsylvania, spoke of the difficulties in obtaining coöperation from members of the Standing Committees, and earnestly called upon them, and upon the profession generally, to aid the Chairmen of the several Committees with their individual experience and observations. Dr. Palmer also detailed the plan of action adopted by the Medical Association of Michigan, for the purpose of eliciting accounts of epidemics, &c., and recommended a similar arrangement to other societies.

The Report was then referred to the Committee on Publication.

Dr. E. D. Fenner, of New Orleans, Chairman of the Committee on Epidemics of Mississippi, Louisiana, Texas, and Arkansas, stated, that owing to his not receiving information of his appointment, until recently, he had not been able to finish his report. He, however, presented to the Association his "History of the Yellow Fever in New Orleans, in the summer of 1853," and read an abstract on cholera, from his report.

On motion of Dr. McPheeters, Dr. Fenner was requested to complete his report and transmit it to the Publishing Committee, for publication.

Dr. Mussey, of Cincinnati, proposed that the reading of the standing reports be suspended, to allow Dr. Linton, of St. Louis, to present certain views which he entertains in regard to the pathology of yellow fever. The request was granted, and Dr. Linton endeavored, in an able argument, to prove the identity, in cause and nature, of yellow, bilious, and other *so-called* miasmatic fevers. He attributes them all to a *hydro-carbonaceous* state of the blood.

On motion of Dr. Blatchford, of New York, Dr. Linton was requested to draw up a paper expressive of his views, and present it to the Committee on Publication, to be printed.

The regular business was resumed.

Dr. Daniel Brainard, of Chicago,—On the Constitutional and Local Treatment of Carcinoma,—requested an extension of time, which was granted.

Dr. N. S. Davis, of Chicago, read an abstract of his report On the Influence of Local Circumstances on the Origin and Prevalence of Typhoid Fever, and the report was referred to the Committee on Publication.

Dr. F. Donaldson, of Baltimore, was not present, but it was stated that he had completed his report On the Present and Prospective Value of the Microscope in Disease,—which, at his request, was referred to the Committee on Publication.*

It was announced that Dr. R. L. Howard, of Columbus, Ohio, appointed to report on the Pathology and Treatment of Scrofula, has died since the last session of the Association.

The Secretary informed the Association that Dr. Knight, the then President, had, subsequently to the adjournment of the last meeting, appointed Dr. J. L. Cabell, of the University of Virginia, in place of Dr. Wellford, as Chairman of the Committee on Medical Education. He read a letter which he had received from Dr. Cabell, stating that, owing to his not having received notice of his appointment until within a very recent period, he had not been able to obtain the aid or views of his colleagues, and, therefore, that the report which he presented was expressive

* Subsequently, Dr. Donaldson requested permission to withhold his report from publication until the next volume of the Transactions, in order to complete some researches he had undertaken.

of his own opinions only. He also requested a reference of the report to the Committee on Publication, which was granted.

Dr. WRAGG, of South Carolina, Vice President, took the Chair, and Dr. POPE, Chairman of the Committee on Prize Essays and Volunteer Communications, read the following report:—

The Committee on Prize Essays and Volunteer Communications, report,—

That the Essays submitted to their consideration were nine in number—of which one was submitted as a Volunteer Communication.

The Committee have carefully examined the whole of these Essays, and have bestowed upon them the attention which a sense of the importance of the duty assigned them imposed. They feel free to say, that some of these Essays possess undoubted merit, both in matter and style, and they admit in them evidence of high scientific attainment, as well as a familiarity with the graces of composition. But whilst cheerfully according these claims to their authors, the Committee have preferred to be governed in their choice by considerations of originality and practical import, rather than of mere theoretic speculation, however finely portrayed.

The Committee have consequently concluded to award but a single prize. The Essay selected is entitled, "An Essay on a New Method of Treating Ununited Fractures, and Certain Deformities of the Osseous System." It bears the following motto, in French of the sixteenth century.

Et, néantmoins toutes les peines que j'ay prises par cy-devant, j'ay occasion de loüer Dieu, de ce qu' il lui a plu m' appeller à l' opération Médicinale, que vulgairement on nomme Chirurgie, qu' on ne saurait acheter par or ny par argent, mais par le seule vertu, et longue expérience.—*Ambroise Paré.*

Liberally rendered, in modern English, it reads thus,—And, notwithstanding all the pains that I have heretofore taken, I have reason to praise God, in that it hath pleased Him to call me to that branch of Medical practice, commonly called Surgery, which can neither be bought by gold, nor by silver, but by industry alone, and long experience.

Signed,

CHARLES A. POPE,
THOMAS REYBURN,
JOHN S. MOORE,
JOHN B. JOHNSON,
A. LITTON.

On breaking the seal of the packet endorsed with the same motto, Dr. POPE announced that Dr. DANIEL BRAINARD, of Chicago, Illinois, was the successful competitor.

In the absence of other business, Dr. MCPHEETERS, of Missouri, moved that Professor BRAINARD be requested to take the stand and present to the Association an abstract of his "New Method of Treating Ununited Fractures." The motion having been carried, Dr. BRAINARD appeared and stated that, not expecting to be so called upon, he was not prepared to give the proposed abstract. He therefore merely explained the mode of experiment by which he had verified his views.

The President announced that the next business in order was the choice of permanent members, by vote.—No names being proposed, Dr. WASHINGTON, from the Committee of Arrangements, reported other delegates, and recommended, as members by invitation, Drs. WILCOX, J. D. SMITH, S. B. LORANCE, and A. A. RYLEY, of Missouri, and Drs. J. KING and S. W. KINKAID, of Illinois.

The report was received and adopted.

Dr. JOHN G. ELBERT, of Iowa, proposed the following resolutions, which were lost,—

Resolved, That a Committee of — members be appointed to recommend, at the next annual meeting, any amendments necessary, in their opinion, in the Constitution and By-Laws of this Society.

Resolved, That this meeting instruct said Committee to report a Constitution and By-Laws which shall require the election of officers, and the place of holding the annual meetings, to be determined by ballot, and without the intervention of nominating committees.

On motion of Dr. C. B. GUTHRIE, of Memphis, it was

Resolved, That in the Secretary of the Treasury's recommendation to Congress to abolish or materially modify the duty on such crude drugs, not producible in this country, as are used in the laboratories of the country, in the manufacture of chemicals, we recognize a wise provision for the future protection of the profession, and the community at large, from impure and sophisticated medicines.

Resolved, That a copy of this resolution be signed by the proper officers of this Association, and transmitted to the Secretary of the Treasury, and to the Committee of Ways and Means, in Congress.

Dr. J. B. Johnson, of Missouri, read a letter from Dr. Stephen W. Williams, of Winnebago County, Illinois, late of Duffield, Massachusetts, calling the attention of the Association to a certain preamble and resolutions offered by him, at the last meeting, through Dr. F. C. Stewart, of New York, and there laid on the table. He begged leave to call up the subject, through his friend, Dr. Johnson, of St. Louis.

On motion of Dr. Johnson, the resolution was taken up, and adopted, as follows:—

Resolved, That a Standing Committee be appointed by this Association to procure memorials of the eminent and worthy dead among the distinguished physicians of our country, and present them to this Association for publication in their Transactions.

The following resolution, offered by Dr. McIlvaine, of Ohio, was rejected:—

Resolved, That in the opinion of this Association, the practice of professors' reading lectures to their classes, no matter with how much care selected from the musty records of antiquity, is a miserable apology for teaching, is *primâ facie* evidence of their inaptitude to instruct, and is inimical to medical progress.

Dr. J. E. Nagle, of Kenton, Ohio, proposed that the words "for any surgical instrument," in Chapter 2d, Article 4th, of the Code of Medical Ethics, be erased. The proposition was not adopted.

Dr. F. A. Ramsey, of Tennessee, proposed the following resolution, which, agreeably to Art. VII. of the Constitution, lies over to the next annual meeting:—

Resolved, That the Constitution of this Association be so amended as to dispense with the Nominating Committee, and the duties of such Committee.

On motion of Dr. S. H. French, of New York, it was—

Resolved, That a Committee of three be appointed, by the Chair, to inquire what State, or other, Society, represented in this Association, is in fellowship with irregular practitioners.

The President subsequently appointed Dr. S. H. French as Chairman of said Committee, and any other two members whom he might select as colleagues.

Dr. Blatchford, of New York, stated that Dr. A. D. Spoor, of Troy, New York, had been for several years investigating the subject of hydrophobia, with the endeavor to ascertain the influence of *Season* upon the development of that disease, or the intro-

duction of the poison. The results of an enlarged experience show that four-fifths of the bites by rabid animals, and nine-tenths of the cases of hydrophobia occur in cold weather.

Dr. B. requested, in behalf of Dr. SPOOR, who is not a member of the Association, that members would favor him with the results of their experience, stating date of attack, period of incubation, if any, and duration of the disease.*

Dr. A. B. PALMER, of Michigan, moved the following resolution, which was adopted:—

Resolved, That Dr. T. W. BLATCHFORD, of New York, be appointed Chairman of a Committee on Hydrophobia, and the connection of season of the year with its prevalence.

Dr. JOSEPH N. MCDOWELL, of Missouri, alluded to the existence of a question of priority in regard to some improvements of certain instruments for lithotomy, and moved that a Committee be appointed to report upon the improvements by NATHAN R. SMITH, PAUL F. EVE, and JOSEPH N. MCDOWELL, which motion was, on motion of Dr. BIDDLE, of Pennsylvania, laid on the table.

* The subjoined extract of a letter from Dr. Blatchford to the Chairman of the Committee on Publication, is inserted for the purpose of more definitely indicating the information wanted.

TROY, 30th June, 1854.

MY DEAR SIR—

* * * * * * * The object is,

1st. To ascertain whether there are any grounds for the very generally popular belief in *Sideral Influence*, in the production of rabies in the canine race;

2nd. Whether it is the safest and the wisest course for municipal authorities to restrict their laws against dogs running at large, unmuzzled, to the period of "dog-days" only; and,

3d. What influence *Climate* has on the production of the disease, either in man or brute.

To accomplish these objects, in which I am now united with my friend Dr. Spoor, we invite communications from medical gentlemen in any part of the Union, who, either in their own practice or as counselors in that of others, may have witnessed cases of hydrophobia, in man or brute; stating the day or month of the *inoculation*, the period of *attack*, the *duration* of the disease, and, if in the human species, the *name age, temperament, sex*, and *residence* of the individual.

I promised the Association, if the faculty throughout our extended country would promptly and generally respond to these inquiries, that, at our next meeting, *Deo volente*, I would guarantee a communication on this subject, from Dr. Spoor, which would not only be exceedingly interesting, but, at the same time, a valuable contribution to our hygiene.

Yours truly,
T. W. BLATCHFORD.

Dr. RAMSEY, of Tennessee, moved that a Committee be appointed who shall be charged with the duty of investigating the charges made against gentlemen in fellowship with this Association, of sustaining proprietory medicines by certificate, or otherwise. Carried.

On motion of Dr. S. M. SMITH, of Ohio, it was—

Resolved, That a Standing Committee of ——— members be appointed by this Association on the subject of Insanity, as it prevails in this country, including its causation—as hereditary transmission; educational influences, physical and moral, social and political institutions, &c.; its forms and complications; curability; means of prevention, &c.

Afternoon Session.

The Association was called to order at 3 o'clock, Dr. WRAGG, Vice President, in the Chair.

On motion of Dr. WHITE, of New York, it was unanimously—

Resolved, That the thanks of this Association be presented to Dr. JONATHAN KNIGHT, late President, for the very dignified, courteous, and efficient manner in which he presided over its deliberations; and that he be respectfully requested to furnish the usual address for publication;

Also to Dr. EDWARD L. BEADLE, our late Secretary, for the courteous and efficient manner in which he has performed his laborious duties; and to the late Vice-Presidents and other Officers.

The Secretary read a report from Dr. GEORGE ZIEGLER, of Philadelphia, Chairman of the Special Committee appointed at the last meeting in New York, to propose a "Plan for the more general, systematic, and thorough investigation of subjects connected with Medical Science." It concludes with the following resolution:—

Resolved, That the American Medical Association hereby recommends all Medical Societies to establish, in accordance with the plan detailed in the foregoing report, special committees for the selection, investigation, collaboration, and publication of all subjects of interest connected with Medical Science.

The report and resolution were, on motion of Dr. PALMER, referred to the Committee on Publication, to be published at their discretion.

Dr. N. S. DAVIS, of Chicago, called the attention of the Asso-

ciation to the great sacrifice of health and life which takes place annually, especially among the children of large cities, on account of the difficulty of procuring a proper supply of pure and wholesome milk; and the great importance of devising some mode by which the nutritious constituents of the milk can be preserved in their purity and sweetness for such purposes.

In connection with the subject he laid before the Association a specimen of dried milk, which had been placed in his hands, and which was represented to be capable of preserving all the qualities of the milk perfectly, any length of time. He thought the subject eminently worthy of the attention of the Association.

On motion, the Association adjourned to meet at 9 o'clock, A. M., to-morrow.

Thursday, May 4, Morning Session.

The Association was called to order at 9 o'clock, by the President.

The regular order of business was, on motion, suspended, in order to fill a vacancy in the Nominating Committee, caused, since the last meeting, by the departure from the city of Dr. Thomas Siveter, of Iowa; and

Dr. D. L. McGugin was appointed in his stead.

The minutes of yesterday were read and adopted.

Dr. James R. Washington, Chairman of the Committee of Arrangements, reported the names of delegates registered since the last report, and recommended that the following gentlemen be admitted to seats in the Association, as members by invitation: Drs. Wm. Robinson, J. K. Sharon, and —— Linn, of Illinois; Drs. Brent, H. C. Wright, and W. H. Cobb, of Missouri; and Dr. J. L. Mothershead, of Indiana.

The report was accepted and the recommendation adopted.

Dr. McPheeters, of St. Louis, from the Committee of Arrangements, announced that he had addressed communications to the Companies on the different Northern and Eastern Railroad lines, and had received answers from them all, granting (with one exception—the New York and Hudson River Railroad) to members of the Association, returning to their homes, a free passage, on their presenting evidences of their membership, signed by the Secretary of the Association.

The hospitalities of the city of Burlington, Iowa, were extended to those members of the Association who return to their homes by way of the Upper Mississippi.

Dr. ATLEE, of Pennsylvania, moved that it shall be the duty of the Publication Committee to append to each volume of the Transactions, hereafter published, a copy of the Constitution of the Association. After some remarks by Dr. THOMPSON, of Illinois, the motion was adopted.

Dr. S. D. GROSS, of Kentucky, offered the following resolution, which was adopted, and Dr. GROSS appointed the Committee for the purpose named therein:—

Resolved, That a Committee of one be appointed by the Chair, to inquire into the causes which obstruct the formation and establishment of our National Medical Literature, and to report on the subject at the next annual meeting of this Association, or as soon thereafter as practicable.

A letter was read from T. S. O'SULLIVAN, Esq., Engineer and Superintendent of the Pacific Railroad of Missouri, inviting, on behalf of the Directors, the members of the Association to an excursion on that road, and desiring the appointment of a day, and the hour most convenient for starting.

On motion of Dr. ATLEE, the invitation was accepted, the thanks of the Association returned to the Directors, and the time fixed at 10 o'clock on Friday morning.

The following resolution, offered by Dr. J. B. LINDSLEY, of the Nashville University, and seconded by Dr. BRECKINRIDGE, of Kentucky, was, after some remarks by Drs. HUGHES, of Iowa, and PALMER, of Illinois, referred to the Committee on Medical Education:—

Resolved, That this Association earnestly recommend to the few Western Schools which still retain the rule of making four years' practice equivalent to one term at College, the abrogation of said rule, as holding out a strong inducement and temptation to young men to enter upon the practice of medicine with little or no preparation.

Dr. PAUL F. EVE, of Tennessee, presented a resolution which, after an accepted amendment, substituting the word "country" for "large cities," was adopted, as follows:—

Resolved, That a Committee of three be appointed by the Chair, to report, at the next meeting of the Association, the best means of preventing the introduction of disease, by emigrants, into our country.

Dr. Eve declining to act, the Chair appointed Drs. S. H. Dickson, of Charleston, South Carolina, J. H. Griscom, of New York, and E. D. Fenner, of New Orleans, said Committee.

The following resolution, offered by Dr. M. L. Linton, of Missouri, was referred to the above-named Committee :—

Resolved, That in the opinion of this Association, quarantine establishments afford no protection to states and cities against the invasion of epidemics such as cholera and yellow fever.

Another motion of Dr. Linton's, that the sense of the Association be taken as to the utility or inutility of quarantine, was, on motion of Dr. Palmer, laid on the table.

Dr. Sayre, of New York, introduced the subject of the memorial from the American Medical Society of Paris to the Association, read yesterday, and referred—without, as he thought, being fully understood—to the Committee on Medical Education. He had not, at the time of its reference, nor, indeed, until reading the memorial in a morning paper, considered its import, and its possible effect when widely circulated and read. He denounced the paper as insulting to the Association and to the Profession in this country, and as calculated unjustly to reflect upon the mode and efficiency of medical instruction in the United States. He would, therefore, move that the memorial be withdrawn from the Committee on Medical Education.

Dr. Atlee remarked that he could speak from a knowledge of the motives of the young men composing that Society, and that it was not their intention so to reflect. The mode of medical education in some American schools which he then had in mind, needed reformation; and that was what the memorialists wished to effect. The subject was further warmly discussed by Drs. Elbert, McIlvaine, Edgar, and Paddock; and then the motion of Dr. Sayre prevailed, by a large majority.

The paper was afterwards, on motion, laid on the table.

The Secretary read a letter just received from Dr. John F. Peebles, of Petersburg, Virginia, Chairman of the Committee on the Epidemics of Virginia and North Carolina. Dr. Peebles states that, although using his best exertions, he has not been able to collect sufficient materials upon which to base a proper report, and that it is exceedingly difficult to obtain the necessary facts. Though not desiring it, he is willing, should the Committee be continued, to do all in his power.

On motion, Dr. PEEBLES was excused from serving as Chairman of the Committee.

Dr. JAMES L. PHELPS, of New York city, asked and obtained leave to read an abstract of a paper which he had prepared, upon the Relations between Medicine and Religion; but, the Nominating Committee appearing, Dr. Phelps waived his privilege, temporarily, that the Committee might report.

Dr. JAMES P. WHITE, of New York, Chairman, then submitted the following report from the Committee on Nominations, Dr. N. S. DAVIS, one of the Vice Presidents, being in the Chair:—

The Committee on Nominations, in fulfilling the duty imposed upon them, recommend the continuance of several of the Special Committees previously created, and the appointment of some new ones.

They therefore submit the following list of Chairmen of Special Committees, with the subjects to them committed:—

Dr. WORTHINGTON HOOKER, of New Haven, Connecticut, On the Epidemics of New England and New York.

Dr. JOHN L. ATLEE, of Lancaster, Pennsylvania, On the Epidemics of New Jersey, Pennsylvania, Delaware, and Maryland.

Dr. D. J. CAIN, of Charleston, South Carolina, On the Epidemics of South Carolina, Florida, Georgia, and Alabama.

Dr. W. L. SUTTON, of Georgetown, Kentucky, On the Epidemics of Tennessee and Kentucky.

Dr. THOMAS REYBURN, of St. Louis, Missouri, On the Epidemics of Missouri, Illinois, Iowa, and Wisconsin.

Dr. GEORGE MENDENHALL, of Cincinnati, Ohio, On the Epidemics of Ohio, Indiana, and Michigan.

Dr. E. D. FENNER, of New Orleans, Louisiana, On the Epidemics of Louisiana, Mississippi, Arkansas, and Texas.

Dr. JAMES JONES, of New Orleans, Louisiana, On the Mutual Relations of Yellow and Bilious Remittent Fever.

Dr. D. F. CONDIE, of Philadelphia, Pennsylvania, On the Causes of Tuberculous Disease.

Dr. JOSEPH LEIDY, of Philadelphia, Pennsylvania, On Diseases of Parasitic Origin.

Dr. A. P. MERRILL, of Memphis, Tennessee, On the Physiological Peculiarities and Diseases of Negroes.

Dr. JOSEPH N. McDOWELL, of St. Louis, Missouri, On Statistics of the Operation for the Removal of Stone in the Bladder.

Dr. F. Peyre Porcher, of Charleston, South Carolina, On the Toxicological and Medicinal Properties of our Cryptogamic Plants.

Dr. Daniel Brainard, of Chicago, Illinois, On the Constitutional and Local Treatment of Carcinoma.

Dr. George Engleman, of St. Louis, Missouri, On the Influence of Geological Formation on the Character of Disease.

Dr. Henry Taylor, of Mount Clemens, Michigan, On Dysentery.

Dr. Horace Green, of New York, On the Use and Effect of Applications of Nitrate of Silver to the Throat, either in Local or General Disease.

Dr. P. Claiborne Gooch, of Richmond, Virginia, On the Administration of Anæsthetic Agents during Parturition.

Dr. Charles Hooker, of New Haven, Connecticut, On the Diet of the Sick.

Dr. E. R. Dabney, of Clarksville, Tennessee, On Certain Forms of Eruptive Fevers prevalent in Middle Tennessee.

Dr. Sandford B. Hunt, of Buffalo, New York, On the Hygrometrical State of the Atmosphere, in various Localities, and its Influence on Health.

Dr. Frank H. Hamilton, of Buffalo, New York, On the Frequency of Deformities in Fractures.

Dr. M. M. Pallen, of St. Louis, Missouri, On Puerperal Convulsions.

Dr. G. S. Walker, of St. Louis, Missouri, On Diseases of the Prostate Gland.

Dr. H. A. Johnson, of Chicago, Illinois, On the Excretions, as an Index to the Organic Changes going on in the System.

Dr. Leroy H. Anderson, of Sumpterville, Alabama, On Typhoid Fever, and its Complications, as it prevails in Alabama.

Dr. W. H. Byford, of Evansville, Indiana, On the Pathology and Treatment of Scrofula.

Dr. N. S. Davis, of Chicago, Illinois, On the Nutritive Qualities of Milk, and the Influence produced thereon by Pregnancy and Menstruation, in the Human Female, and by Pregnancy in the Cow; and also on the Question whether there is not some mode by which the nutritive constituents of milk can be preserved in their purity and sweetness, and furnished to the inhabitants of cities in such quantities as to supersede the present defective and often unwholesome methods of supply.

Dr. E. B. Haskins, of Clarksville, Tennessee, On Microscopical Investigations of Malignant Tumors.

Dr. George R. Grant, of Memphis, Tennessee, On the Sulphate of Quinia as a Remedial Agent in the Treatment of Fevers.

Dr. R. R. McIlvaine, of Cincinnati, Ohio, On the Study of Pathology at the Bedside.

Dr. E. S. Cooper, of Peoria, Illinois, On Orthopædic Surgery.

Dr. Andrew F. Jeter, of Palmyra, Missouri, On the Modus Operandi of the Envenomed Secretions of Healthy Animals.

Dr. Samuel M. Smith, of Columbus, Ohio, On Insanity.

Dr. R. LaRoche, of Philadelphia, Pennsylvania, On the Jaundice of Yellow Fever, in its Diagnostical and Prognostical Relations.

Dr. Charles Quarles Chandler, of Rocheport, Missouri, On Malignant Periodic Fevers.

Dr. S. B. Chase, of Portland, Maine, On Typhoid Fever in Maine.

Committee on Plans of Organization for State and County Societies.—A. B. Palmer, M. D., Michigan; R. R. McIlvaine, M. D., Ohio; D. L. McGugin, M. D., Iowa; E. R. Peaslee, M. D., New Hampshire; Thomas Lipscomb, M. D., Tennessee.

Committee on Medical Literature.—R. J. Breckinridge, M. D., Kentucky; O. M. Langdon, M. D., Ohio; A. A. Gould, M. D., Massachusetts; D. L. McGugin, M. D., Iowa; J. B. Flint, M. D., Kentucky.

Committee on Medical Education.—Wm. H. Anderson, M. D., Alabama; A. Lopez, M. D., Alabama; Andrew Murray, M. D., Michigan; F. A. Ramsey, M. D., Tennessee; R. D. Ross, M. D., Cherokee Nation.

Committee on Prize Essays.—R. La Roche, M. D., Pennsylvania, Chairman; Isaac Hays, M. D., Pennsylvania; Alfred Stillé, M. D., Pennsylvania; J. B. Biddle, M. D., Pennsylvania; George W. Norris, M. D., Pennsylvania; Joseph Carson, M. D., Pennsylvania; Joseph Leidy, M. D., Pennsylvania.

Committee of Arrangements.—Isaac Hays, M. D., Pennsylvania, Chairman; G. Emerson, M. D., Pennsylvania; Wilson Jewell, M. D., Pennsylvania; Alfred Stillé, M. D., Pennsylvania; John B. Biddle, M. D., Pennsylvania; Francis West, M. D., Pennsylvania; Wm. V. Keating, M. D., Pennsylvania.

Committee on Publication.—Pliny Earle, M. D., New York, Chairman; D. Francis Condie, M. D., Pennsylvania; E. S. Le-

MOINE, M. D., Missouri; FRANCIS WEST, M. D., Pennsylvania; ALDEN MARCH, M. D., New York; E. H. DAVIS, M. D., New York; C. R. GILMAN, M. D., New York.

Dr. REYBURN, of Missouri, moved—

That the report from the Nominating Committee be adopted, with the exception of that portion which refers to the Committee on Publication.

A prolonged discussion ensued upon this proposition, participated in by Drs. REYBURN and STORER in favor of its adoption, and Drs. SAYRE, EVE, HERRICK, and PADDOCK against it.

Dr. EVE understood that the late Committee had allowed between ten and eleven hundred dollars to be consumed upon one report.

The Secretary remarked that, in justice to the Committee, the following facts should be remembered. It was made known to the Association, at New York, that the illustrations accompanying the report alluded to, would cost at least a thousand dollars. It was not then objected to by the Association, but, on the contrary, a larger assessment than usual was made, partly with a view to the increased expense.

At length, on motion of Dr. PALMER, of Michigan, the report was received, and then,

On motion of Dr. SAYRE, of New York, the Association resolved itself into a Committee of the Whole, for the purpose of considering said report from the Committee on Nominations.

On rising, the Committee of the Whole, through its Chairman, Dr. JOHN D. ELBERT, of Iowa, recommended that the report from the Committee on Nominations be amended, by striking out, as originally proposed by Dr. REYBURN, the part relating to the Committee on Publication.

On motion of Dr. ATLEE, of Pennsylvania, the recommendation of the Committee of the Whole was adopted; and then,

The Association adjourned to meet at 3 o'clock, P. M.

Afternoon Session.

The Association convened at 3 o'clock, Dr. N. S. DAVIS, Vice President, presiding.

The Chairman of the Committee of Arrangements reported the names of delegates who had arrived and registered their names since the last report.

On motion of Dr. STAHL, of Illinois, Dr. W. C. HARRINGTON, of Payson, Illinois, was elected a permanent member of the Association.

Dr. W. S. MAUS, of Pekin, Illinois, having been regularly appointed a delegate, but prevented by sickness from attending the meeting of the Association, and having paid the annual assessment, was also elected a permanent member.

On motion of Dr. ATLEE, of Pennsylvania, it was—

Resolved, That this Association earnestly recommend to their Medical brethren in those States in which societies do not exist, the immediate organization of State and County Medical Societies.

The President, Dr. POPE, appeared, and resumed the Chair.

The following resolution, offered by Dr. RAMSEY, of Tennessee, was, on motion of Dr. COONS, of Missouri, laid on the table.

Resolved, That while this Association reserves to itself the right of expressing, through reports of committees, or by resolution, its appreciation of professional qualification, or of medical education, it is far from assuming the position of guardian of medical schools.

A motion by Dr. J. B. LINDSLEY, of Tennessee, seconded and supported by Dr. BRECKINRIDGE, of Kentucky, and amended by Dr. S. M. SMITH, of Ohio, by inserting the words "and all plates and other means of illustration," was adopted, as follows:—

Resolved, That, hereafter, every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

Dr. PHELPS, of New York, now claimed the privilege which he had temporarily waived, at the morning session, and presented a paper, entitled, "Religion an Element in Medicine, or the Duties and Obligations of the Profession,"—an abstract of which he read.

A motion to lay the paper on the table, was lost.

Dr. ATLEE moved that the paper be referred to a Special Committee. The motion prevailed, and the Chair appointed Drs. ATLEE, of Pennsylvania, SAYRE, of New York city, and MARCH, of Albany.

On motion of Dr. SMITH, of New Jersey, the regular order of business, which was the consideration of the report of the Nomi-

nating Committee, as amended by adopting the recommendation of the Committee of the Whole, was now resumed.

Dr. EVE, of Nashville, moved that the report be referred back to the Committee on Nominations, for the purpose of filling the blank caused by striking out the portion referring to the Committee on Publication.

An amendment was proposed, requiring each member of the Committee to vote.

Dr. SAYRE, of New York city, moved, as an amendment to the amendment, that the vacancy be filled by re-inserting the names originally proposed by the Committee on Nominations.

An animated and warm debate arose, participated in by Drs. BRECKINRIDGE, ATLEE, SAYRE, STORER, McDOWELL, and others, which resulted in the adoption of Dr. Sayre's amendment; and then,

On motion of Dr. SAYRE, the report from the Committee on Nominations, as originally presented, was unanimously adopted.

On motion of Dr. WHITE, of New York, it was unanimously—

Resolved, That a vote of thanks be returned to the late Publishing Committee, for their best endeavors to serve the American Medical Association.

The following communication was then read, and the resignation, on motion, accepted.

"The Delegates from Philadelphia feel themselves authorized to resign, in the name of Dr. D. F. CONDIE, of Philadelphia, the office of Treasurer of the Association.

"R. LA ROCHE,
"*In behalf of the Philadelphia Delegation.*"

A resolution was then unanimously adopted, tendering the thanks of the Association to Dr. D. F. CONDIE, for the able and thorough manner in which he had performed his arduous duties as Treasurer.

Dr. FRANCIS WEST, of Philadelphia, tendered his resignation as Secretary of the Association, which he was requested to withdraw, and which, on motion, was declined.

On motion of Dr. BRECKINRIDGE, of Kentucky, it was then—

Resolved, That, hereafter, the majority of the Committee on Publication shall be selected from the physicians of that city in which this Association may hold its annual session.

Dr. W. H. Byford, of Indiana, offered the following preamble and resolution, which, as an amendment to the Constitution is involved, lie over till the next annual meeting:—

Whereas Much obscurity exists as to the meaning of "Epidemics," and the reports of the different Committees on epidemics include many diseases usually regarded as endemic, therefore

Resolved, That the names of these Committees be changed, so as to read—"Committees on Prevailing Diseases;" and that they be, and are hereby, instructed to investigate and report upon the diseases of their respective districts.

Dr. Henry S. Downs, of New York, proposed an amendment to Article III. of the Constitution, providing that the regular annual meetings of the Association commence on the *second* instead of the *first* Tuesday in May. This, also, lies over for one year.

An amendment to the Constitution, proposed by Dr. Condie, of Pennsylvania, at the meeting in New York, was, in the absence of the mover, called up by the Secretary, Dr. Lemoine, and unanimously adopted, as follows:—

Resolved, That the second clause of Article II. of the Constitution, be so amended as to admit the American Medical Society in Paris to representation in this body, upon the same terms as the medical bodies in this country.

Dr. W. H. Byford presented a resolution, which was unanimously assented to, expressing the gratification of the Association at the able address of Dr. Ninian Pinkney, in behalf of the Navy Medical Corps, and tendering the warmest wishes for the success of that highly esteemed portion of our profession, in their endeavors to obtain that rank among officers to which they are so justly entitled.

Dr. Paddock, of Illinois, moved that the Treasurer be authorized to refund any amounts, exceeding the regular annual assessment, which members may have, at any time, paid out for publishing the Transactions of the Association. He assured the Association that the proposal was made in good faith, and prompted by motives of justice. The motion was laid on the table.

On motion of Dr. J. K. Bartlett, of Milwaukie, the thanks of the Association were tendered to the Committee of Arrangements, the physicians and the citizens of St. Louis, for the kind hospitalities which they have extended to its members during their session in this city.

Dr. W. W. Hitt, of Indiana, offered the following resolution, which was adopted, and referred to the Nominating Committee:—

Resolved, That a Committee of — members be appointed to examine into and report upon the effects of alcoholic liquors upon the system, in health and disease.

At a subsequent period in the proceedings, the Nominating Committee reported the name of Dr. R. D. Mussey, of Cincinnati, as the Committee under the above resolution; Dr. T. W. Blatchford, of Troy, New York, as Treasurer, in place of Dr. Condie, resigned; and Dr. W. D. Haskins, of Richmond, Virginia, as Chairman of the Committee on the Epidemics of Virginia and North Carolina, in place of Dr. Peebles, excused.

Dr. Blatchford respectfully declined serving as Treasurer, his residence being at a distance from that of the Chairman of the Committee on Publication. The name of Dr. Isaac Wood, of New York city, was substituted; and then the report of the Nominating Committee was adopted.

The thanks of the Association were cordially extended to Dr. Charles Hooker, of Connecticut, for his assiduity and zeal in performing his labors as Treasurer *pro tempore*.

On motion of Dr. Paddock, of Illinois, it was—

Resolved, That it is the duty of every member of this Association who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and that on proof of the fact, such school shall be deprived of its representation in this body.

The thanks of the Association were, on motion, presented to the several railroad companies who have generously offered the members a gratuitous passage to their respective homes.

The following resolution, presented by Dr. C. B. Hughes, of Cincinnati, was, on motion, laid on the table:—

Resolved, That the cultivation and practice of specialties, in medicine and surgery, are legitimate and honorable pursuits, and meet the approval of this Association,—and that the same avenues for announcing his calling to the public that are recognized as proper in the general practitioner, are open to the specialist.

Dr. Edgar, of St. Louis, offered a resolution, recommending to apothecaries the adoption of labels of particular colors, in order to enable patients and others to distinguish poisonous from other compounds. This, also, was laid on the table.

The Secretary read a letter from Dr. G. ENGLEMAN, of St. Louis, resigning his appointment as Chairman of a Special Committee to report on "The Influence of Geological Formation on the Character of Disease," alleging, as a reason for such resignation, that experience, as well as reasoning, had satisfied him that the influence attributed to the geological formation of a region upon the health of its inhabitants does not exist.

Certain members objected to the resignation, wishing to know Dr. ENGLEMAN'S reasons for his views; and he was therefore continued in his appointment.

A communication from Dr. ROBERT S. BAILEY, of South Carolina, a Delegate in attendance, drawing the attention of the Association to a resolution offered at Charleston, by Dr. PHELPS, of New York, and rejected at Richmond, proposing an amendment to Article VII. of the Constitution, so as to indicate a sense of dependence on "Divine Guidance and Support" in our endeavors to effect the objects of this Association, was, on motion of Dr. SAYRE, of New York, referred to the Special Committee on Dr. PHELPS'S paper, of which Dr. ATLEE, of Pennsylvania, is Chairman.

Dr. ROLSTON proposed the name of Dr. M. M. BANE, of Illinois, as a Permanent Member of the Association; but the vote not being unanimous, as required by the Constitution, the motion was lost.

The following resolution, proposed by Dr. J. B. LINDSLEY, of the Nashville University, was laid on the table:—

Resolved, That the too prevalent practice of professors in medical colleges recommending their own writings and editings, as text-books for their students, is, in the opinion of this Association, a serious evil, trammeling as it does the student in his choice of books, and promoting the publication and circulation of works of inferior merit.

On motion, the Association adjourned, *sine die*.

E. S. LEMOINE, }
FRANCIS WEST, } *Secretaries.*

ADDRESS

OF

USHER PARSONS, M. D.,

VICE PRESIDENT.

ADDRESS OF USHER PARSONS, M. D.,

VICE PRESIDENT.

GENTLEMEN OF THE AMERICAN MEDICAL ASSOCIATION:—

IT has been customary for the Presiding Officer of this Association, on retiring from the Chair, to give a valedictory discourse. On the eve of my departure from Rhode Island, our venerable President notified me of his inability to attend and perform this part of his official duty, which deprives us of the rich entertainment anticipated from so distinguished a scholar and professor. The notice being entirely unexpected, I am unprepared to offer you any thing worthy of your attention; and my inclination would therefore be to remain silent, but for an apprehension that this course might operate as a precedent to others on similar occasions. I will therefore present you, rather as an apology for a discourse, a few thoughts that have suggested themselves while on my way to this city.

In order to promote the honor, dignity, and usefulness of our profession, objects for which the Association was instituted, its members must be gathered from all parts of our country, and united into one harmonious fraternity, and must adopt such measures as will promote and perpetuate among ourselves an *esprit du corps*, a conformity of sentiment and feeling, and a combination and coöperation in action. This has already been accomplished in a good degree, by holding our annual meetings in distant and remote cities of the Union. They must continue to be carried to new and ever-varying spheres of action, until their beneficial influ-

ence is made available to the whole profession. As the metallurgist, in separating a heterogeneous mass of particles, passes over it a magnetic bar to attract the pure iron and steel with a force proportioned to its proximity, so must the meetings of this Association, in order to gather into one fold suitable materials of growth and strength, be carried from place to place over the whole mass of our population, attracting from the dross and impurities all that is of value and worthy of reception and incorporation into a homogeneous and efficient brotherhood. These considerations influenced me in voting to accept the invitation to hold the present meeting in Missouri, notwithstanding the toil and fatigue of the journey, and its remoteness from the residence of a large proportion of the delegates. It is here, more than elsewhere, that the meetings of this Association are likely to prove beneficial by a rapid enlargement of our numbers.

Whoever glances at a map of the Mississippi valley, extending from the base of the Alleghany and Cumberland Mountains to the margin of the Rocky Mountains, from the highlands bordering on Lake Superior to the Gulf of Mexico, and contemplates the fertility of its soil, its adaptation for cereal productions, which are so necessary for human subsistence and increase, and who surveys the majestic Mississippi, navigable through this whole territory, with its numerous navigable tributaries pouring in their treasures on either side, and adds to this the vast mineral resources, lead, copper, iron, and coal, which are far more conducive to healthful opulence than the golden regions of California; whoever, I say, candidly surveys all these elements of future growth, expansion, and power, and moved onward by the agency of steam on land and water, and in labor-saving mechanical and manufacturing operations, can arrive at no other conclusion than that this vast territory, the largest and most favored one by nature of any under the whole canopy of heaven, will, in time, be densely populated with scores of millions, and become the seat of empire of the western world; and that it is destined to be the grand theater of human progress, in every department that is calculated to advance the dignity and promote the happiness of the human family.

And in no department of human affairs is progress here more sure than in medical knowledge. Our Atlantic States have inherited a reverence for European opinions, which, although commendable in our early medical history, is at the present day less favorable to American progress and discovery in medicine. We

need to interrogate nature and experience more, and European opinions less. We need mental as well as political independence, a freer swing of thought and purpose that characterizes our brethren of the West, and which this Association is adapted to call into action.

There is much to encourage you in your recent discoveries and contributions, in the results of the vivisections of saurians, the half of which, if confirmed by future experiments, will shed new light on physiology; and again, in the discoveries made relating to the process of digestion by your late lamented Beaumont, of St. Louis, who, for the theories and speculations before prevailing, has substituted ocular demonstration of the *modus operandi* of that wonderful process, by submitting to it the various articles of human aliment, and determining the length of time required for converting each into healthful chyme; and again, in the successful labors of Drake in traveling from State to State throughout the valley, collecting the history and character of its epidemics by personal inquiry and observation. Others of your venerated dead might be mentioned, who have pursued a like independent course untrammeled by European authorities. Of their immediate successors who now stand at the head of their profession, it would ill become me to speak, seeing that some of them are present and unused to such freedom of remark. But to the junior members of the profession we would say, "Unite with us—follow the example of the distinguished pioneers I have named, and of Caldwell and Harrison, who have gone to their reward; throw the results of your labors into the common stock of medical knowledge accumulated by this Association, where rest assured that they will be duly appreciated to the common benefit of the profession, and of mankind, and redound eventually to your everlasting honor and professional fame."

Gentlemen, we are reminded by the history of the past year of the frailty of human life. Death has removed many of our brethren of this Association. Among others, its first President, Professor Chapman, of Philadelphia, a veteran teacher in our oldest medical college; Professor Caldwell, another veteran of great distinction as a lecturer and an author; Professor Howard, of Ohio, an eminent surgeon, editor of the Ohio Medical Journal, and who was Vice President of this Association at the time of his decease; and Dr. George Shattuck, LL. D., of Boston, an extensive practitioner, and formerly President of the Massachu-

setts Medical Society. He was reputed the wealthiest physician in New England, and his numerous bequests to educational, humane, and religious institutions, and private enterprises and charities, proclaimed that his philanthropy was proportioned to his opulence.

And we are reminded, by the return of this anniversary, of the terrible catastrophe that occurred at Norwalk. The Association had received from our brethren of New York a cordial welcome, and were honored with overflowing hospitality. After a delightful and profitable session, the Association adjourned, and many of the members were on their way in cars to their respective homes in joyous anticipation of rejoining their families, when in a moment, in the twinkling of an eye, seven of them were launched into eternity, leaving us the solemn admonition that "in the midst of life we are in death." I should deem it a duty, on this occasion to pay a tribute of respect due to their memory, by portraying their many virtues and excellences as men and as physicians, had I not ascertained that justice will be done them by an abler pen. Our brethren of New York, with characteristic magnanimity, which adds to their claim on our gratitude, immediately on the announcement of the disaster, summoned a meeting and passed resolutions expressive of their deep sorrow at the sad event; and they also appointed a committee to prepare a eulogy on the deceased, to be offered at this Annual Meeting; and the distinguished ability of the chairman and members of that committee is a sufficient guarantee that justice will be done to the memory of these, our lamented brethren.

Gentlemen, eight years have elapsed since the preliminary meeting of the Convention which recommended the formation of this National Association, and the results of its labors have equaled the expectations of the friends of reform and progress in our profession. The six published volumes of Transactions have successively increased in value and interest, and are enduring monuments of the ardent zeal and patient industry of the numerous contributors; and there is every reason to hope that our future labors will continue to be crowned with equally increasing success.

May our deliberations on the present occasion be conducted with fraternal feelings, and contribute largely to the advancement of medical science, and to the honor, dignity, and usefulness of our profession!

REPORT

OF THE

COMMITTEE ON MEDICAL EDUCATION.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION.

In view of the thoroughness of the discussion which the subject of Medical Education has heretofore undergone in the regular reports of appropriate committees, and of the reiterated expression of the sentiments of the Association, that may be regarded as exponents of the now settled opinions of the great body of the medical profession in the United States, your Committee have experienced no little embarrassment in selecting topics of remark which have not already become trite from frequent repetition. The precise line of duty of a Standing Committee on Medical Education was, indeed, indicated by the Constitution, but the clause which prescribed the annual appointment of such a committee, and defined its duties, was stricken out of the Constitution; by a vote of the Association at the Charleston Meeting, in 1851; and when, at the next Annual Meeting held in Richmond, it was resolved "that special committees on Medical Education and Medical Literature be appointed, consisting each of five members," it was apparently the intention of the Association to allow to future committees a wider latitude of discretion as to the scope and direction of their inquiries, than might have been consistent with the limitations imposed by the terms of the original law.

Under this construction of their powers, and in view of the fact just alluded to, that a very full and satisfactory body of information touching several points of interest connected with the general subject of medical education in the United States, as compared with that in other civilized countries, may be found in former reports included among the published Transactions of

this Association, your Committee have felt themselves authorized to abstain from any further discussion of such points, and to confine their attention to "such measures, prospective or established, in reference to medical education and the reputable standing of the profession, as they may deem worthy of special consideration."

The fact being universally admitted that the ranks of the medical profession are rapidly filling with young men very inadequately qualified, either as respects native endowments or positive attainments, for assuming the fearful responsibilities of their vocation—the practical questions which, as your Committee conceive, demand their especial consideration, have reference to the particular features of the existing system of medical education in America which are most instrumental in producing such a result, and to the most judicious, safe, and practicable means for remedying the evil. In the consideration of this question, the Committee believe that they could not present the subject to the Association in a more suitable form than by a recapitulation of the several particulars in respect to which the system of collegiate medical education in the United States has been the subject of unfavorable criticism, and by an inquiry in regard to the extent to which the measures hitherto taken by the Association have had the result of removing or lessening the defects against which they were directed.

1. Among these defects, the want of a proper preliminary education on the part of a large, we fear a constantly increasing, proportion of medical students, has received the earnest attention of the Committee. To this deplorable evil, the existence of which is so easily recognized by the unprofessional community, we may justly ascribe the diminished confidence accorded to regular physicians, and the "forfeiture of social position" that has attended the loss of the homage which the profession formerly received. To the same cause may be attributed, in some degree at least, the gradual lowering of the standard of professional attainments required of the candidates for graduation; since it cannot be otherwise than that such standard should bear some relation to the average talent and mental culture of the pupils. This subject was considered so important by the members of the National Medical Convention which met in New York, in 1846, as to induce that body to appoint a special committee "to report on the standard of acquirements which should be exacted of young

men, before being received as students of medicine." That committee addressed inquiries to thirty-six medical schools, as well as to several distinguished medical practitioners in different parts of the Union. From the answers received, it appeared that there was then no uniform standard of preparatory education exacted of medical students, but that the profession seemed to be alive to the want of such a standard, and desired one to be established by the Convention. The inquiries of the committee further elicited the expression of a very considerable diversity of opinion as to the kind and extent of preparation which ought to be exacted, the standard of different writers varying from "a common school education" up to the highest collegiate attainments. The committee, in view of the want of any means of legal compulsion, thought there could be no hope of attaining any useful result by insisting upon a standard above the circumstances of the country and the times, and recommended the establishment of "a uniform standard of preliminary education for medical students, which should be of a moderate character—in the first instance too low, rather than too high—and yet of such an extent as will insure both the knowledge and the mental discipline necessary to those who would enter a profession full of labor and responsibility, without excluding meritorious young men of limited means and opportunities." They then proceeded to specify the following standard as one which might reasonably be exacted of every young man who should apply to be received as a student of medicine: "A good English education; a knowledge of natural philosophy, and the elementary mathematical sciences, including geometry and algebra, and such an acquaintance, at least, with the Latin and Greek languages, as will enable the students to appreciate the technical language of medicine, and read and write prescriptions." It must, we think, be conceded that the standard thus recommended by the committee and adopted by the Philadelphia Convention, in May, 1847, with an evident desire to effect a gradual reform by gentle and safe methods rather than to make bold and radical changes, was in all respects moderate and reasonable. Your Committee have not the data necessary for the formation and expression of a positive opinion as to the extent to which this or any other standard has been exacted of young men wishing to enter upon the study of medicine, either under private preceptors or in collegiate classes. So far, however, as their information extends, they have reason to

fear that there has been but little if any real reform in regard to this matter during the seven years which have elapsed since the action of the Philadelphia Convention. There are, however, gratifying indications of future improvement. Thus, the report of Dr. PITCHER, at the last Annual Meeting of this Association, makes known the fact that "it is in contemplation," by the authorities of the University of Michigan, "to exact the same preparation for admission to the Medical Department as is now prescribed for membership in the Department of Arts." At a recent meeting of the Medical Society of Virginia, held April 6th, 1854, the following resolution, offered by the retiring President, Dr. ATKINSON, was unanimously adopted:—

Resolved—That the members of the Society now present, do hereby pledge themselves to each other, that they will not receive under their instruction, as a student of medicine, any individual who may be grossly deficient in either mental or moral endowments, or in that preliminary education which is necessary to fit him for entering a profession requiring high intellectual and moral qualifications; and that we respectfully and earnestly recommend to our brethren throughout the State to adopt a similar rule of action.

Your Committee do not doubt that the faculties of all the most respectable schools of medicine in the Union, are truly anxious to conform to the recommendation of the Association in respect to this measure of proposed reform, and would cheerfully submit to some pecuniary sacrifice, if there were a reasonable guarantee that the desired end could be thereby attained. But as the imposition of rigorous conditions of matriculation by a few of the schools will, it is believed, have no other result than to drive a large proportion of their students to such other institutions as will exact from the candidates for graduation but slender requirements of labor and of learning, it seems scarcely reasonable to hope that, under existing circumstances, the principal medical schools should adopt a policy which threatens to prove so ruinous to their interests, while it offers no compensating advantage to the profession at large.

Moreover, in some of the medical colleges the faculty is not clothed with the authority of prescribing the conditions of matriculation. This is the case with the Medical Department of the University of Virginia, which is owned and supported by the State. The government is lodged in the hands of a Board of Visitors appointed by the Governor of the State; and no member of

the faculty has a voice in their deliberations. All that the faculty have to do, with reference to the point under consideration, is to dissuade young men whose preliminary education is known or believed to be defective, from entering the Medical Department until further and more satisfactory preparation shall have been made. In such cases the student is either transferred to some of the academic classes, or permission is granted him to withdraw entirely from the institution. In no instance has the faculty refused permission of withdrawal, with a return of tuition fees, to a recent matriculate, whose preliminary education has been shown to be defective, provided he would pledge himself not to matriculate in any other medical school until he should have duly qualified himself for the study of medicine by appropriate preliminary mental culture. If it be asked whether this system of moral suasion suffices to eliminate all the defective material of a large class of fresh matriculates, we are constrained to reply that it is far otherwise. Quite a large proportion of the members of the class in each year are very inadequately qualified for commencing their medical studies, and not a few incapable of ever becoming so.

Is there, then, no remedy for an evil which has done so much to dishonor a profession once noted for the profound and varied learning of its members? Your committee are of opinion that it would be premature to come to so discouraging a conclusion. They do not yet abandon the position which was ably sustained by the late Dr. Parrish, in a report made to the Philadelphia Convention, that "the influence of combined and harmonious action, directed to a special object, by the great body of the profession, is a power more potent than that exercised by legislatures, or by the corporations they may create." The operation of such an influence is, however, slow, and we should not be impatient if ample results are not rapidly attained. One of the instrumentalities through which it operates is gradually being brought to bear upon the solution of the difficulties which thwart the attempts that have hitherto been made to introduce this and other measures of medical reform. We allude to the organization of State and County Medical Societies, the manifold usages of which agencies are too obvious to require exposition.

2. A second alleged defect of the "American System" is the shortness of the term of lectures. A resolution adopted by the Convention held in Philadelphia, in 1847, recommending an ex-

tension of the term, in all the medical schools, from four to six months, has been repeatedly sanctioned by the Association. A few of the schools promptly complied with this recommendation, but a part of them, as we are informed, have since found it expedient to abandon the experiment, and to resume their former practice. This fact illustrates the difficulty attending every attempt to carry out any very decided measure of reform, on the part of a few of the schools, while the majority refuse to co-operate. Unfortunately, there exists a difference of opinion as to the advantages of the proposed extension of the term. It will be remembered that the Medical Faculty of Harvard University, presented to the Association, at its second annual meeting, held in Boston in 1849, a formal defense and advocacy of the four months' course, in preference to a more extended term. The Faculty of the Medical Department of Pennsylvania College, in replying to a circular of the Committee on Medical Education for the same year, appear to have taken a similar view. They assume that the "American System" of medical education consists in the instruction derived from "private preceptorship mainly," "with the college and hospital as its complement;" and argue that "either we should labor to perfect that system according to its idea, or we should abandon it for another as radically wrong. Any attempt to alter or amend it, according to an essentially distinct plan, will prove a ruinous patching." They further express the "fear that the recent so-called reform agitation tends to loosen the connection of the preceptor with his pupil, and to lessen his responsibility without adequately supplying the loss;" and contend that "such must be the effect of any considerable increase in the course of lectures." The Committee do not deny that there is some plausibility in this view of the subject, and that some of the arguments advanced have force in their application to the prevalent system of medical education in this country; but they are far from acquiescing in the conclusion that no reform in this respect is needed. They would rather adopt the alternative presented in the argument last cited, and conclude a system which regards the plan for instruction by public lectures "as subordinate and subsidiary" to private instruction, "as radically wrong." This system takes it for granted that even the first-course students have "read" with a private teacher, prior to their attendance on lectures. But when it is borne in mind that the fundamental branches of medical science, on which the whole superstructure

of professional education must rest, are precisely those which require, for their proper and successful exposition, the use of such appliances of demonstration as can be supplied by public institutions alone, it will be admitted that such preparatory "reading" is not always advantageous, and may be injurious. A medical student, reading in the office of a physician residing in a rural district, cannot enjoy the advantage of studying practical anatomy. Hence, most of his reading is on the subjects of practical medicine and surgery, in which he forms the most vague and erroneous notions with regard to the structure and laws of action of the organs, the diseases of which he is studying; and such notions do not always easily give place to the simple truth, when this is subsequently presented. In cities and the larger towns, the case is admitted to be often different. There, the pupils may have access to hospitals and dissecting rooms, and there, too, organized voluntary associations of private teachers supersede, almost wholly, the old system of instruction by a single teacher. Such associations are, however, medical schools in all but the name, and thus do not, in point of fact, constitute a real exception to the principle on which we would insist. Not being entitled to confer the diploma, and basing their claims on the confidence and patronage of the more aspiring students, or the thoroughness of the instruction they offer, many of them give a more full, and especially a more practical course than is required in the regularly incorporated medical colleges. Such private schools are admitted to be most valuable auxiliaries in the cause of medical education, and are entitled, in the opinion of the Committee, to an encouraging notice from the Association. It would, however, be wise, in view both of a judicious economy, and of the likelihood of thereby insuring the largest amount of practical benefit from the educational instrumentalities at the command of the American medical student, to assign to those auxiliary organizations such work only as cannot be adequately performed by the incorporated schools with larger classes,—"such as demonstrations on the part of the student, instead of the instructor, but still under his superintendence and direction;" the actual performance of surgical operations on the dead body; chemical manipulations; the use of the microscope; and clinical instruction, truly so called, which is the study of diseases at the bedside, cases being watched from commencement to end, with special attention to the use of the physical means of diagnosis in diseases of the lungs and heart.

Such instruction as this is of inestimable importance. It cannot be given by lectures alone. The student must practice for himself, under the supervision and direction of a competent teacher; and only a class of limited number can receive adequate attention from one instructor. Such instruction should, therefore, be the appropriate work of a corps of teachers auxiliary to the public schools. From its very nature it can be profitable only to advanced students. In the opinion of your Committee, it should follow, rather than precede or accompany, the instruction imparted in the public schools. The latter should consist mainly in a didactic exposition of the elementary principles of the medical sciences. In this view of the subject, the Committee are inclined to believe that very great advantage would result from an extension of the course of lectures to even a longer term than that heretofore recommended by the Association. In addition to the very obvious evil of crowding six or seven lectures into the compass of a single day, another striking objection to the present system lies in the fact that the practical branches of medical science are of necessity unfolded to the student before he has had an opportunity of becoming acquainted with the elementary principles upon which they are mainly based. For example, his attention is directed to, and his mind bewildered with, an intricate account of the causes and varieties of convulsive diseases, before he has obtained any useful degree of knowledge of the anatomy and physiology of the nervous system, upon which the prevalent doctrines as to the pathology and rational therapeutical indications of such diseases entirely rest. If the term of lectures were extended, it would be possible to diminish the number of lectures for each day, and to make such a distribution of the several branches as would insure an opportunity for the thorough study of the anatomy and physiology of every organ, before the attention of the student should be directed to its pathological states, while several hours would be appropriated to private reading and reflection, and to the practical study of anatomy by means of dissections by daylight.

Regarding, then, "the American System" of medical education by "private preceptorship mainly," at least as that system is carried out in the rural districts, and consequently, for a large majority of American students, "as radically wrong," your Committee would advocate the substitution of a plan which would bring the whole circle of *elementary* medical education within

the province of the schools. It has already been intimated that your Committee assent to the truth of some of the general principles set forth in the argument of the Medical Faculty of Harvard University, against the extension of the term beyond the period of four months. The fallacy, as we conceive, lies in the application of these principles. We have no hesitation in admitting the truth of the statements contained in the following extracts. "No course of lectures, however prolonged, can give complete instruction in any department of professional study." * * * * "Lectures cannot communicate all the knowledge of the profession; they cannot approach this." * * * * "The great purpose of lectures should be, to teach the student to learn for himself. They are not to take the place of private, individual study, but to inform the pupil how that study may be pursued to advantage. Much may be done by the teacher, in this way, to develop the principles according to which medical investigations are to be pursued; to teach the student right modes of thinking, reading, and observing; to aid him in forming just views of the proper objects of inquiry, by laying before him examples of the best ways of getting at the truth." * * * * "Learning is a thing which no man can do for another; the weight of education must fall upon the learner; what he does not get, and make his own, by the active exercise of his own powers, he does not get at all; he must not merely receive, he must take." * * * * "It is further to be observed that a disproportioned dependence upon lectures as on means of instruction is likely to beget injurious habits of mind in the student. The object of the teacher is, or should be, to present the truths he wishes to enforce, and the knowledge he seeks to impart, in a form as attractive as the nature of the subject admits, in order to engage and keep up the attention of the student. Hence, although the student may listen with interest, he does it without effort; his mind is not actually employed." With the exception of the last paragraph which, as asserting that it should be the object of a lecturer to present his subject in so attractive a form as to dispense with the necessity of active effort on the part of the student, conveys a most mischievous error, the force of the foregoing remarks cannot be denied. But it should be observed that they may apply as well to private teaching as to instruction by public lectures; and that, in either case, they apply to the abuse alone and not to the right use of the system. It especially deserves notice that the

abuse in question is almost necessarily incidental, not to the lecturing system, but to the short-term system, and might be more easily avoided if the proposed extension of the term were generally adopted. The weight of education must fall, unquestionably, upon the pupil; and any system, whether that of public lectures or private preceptorship, which aims to dispense with constant and hard labor on the part of the pupil, is mischievous in proportion to its success. The question is not whether teaching by lectures be better than active, personal study, since these are by no means incompatible, but whether personal study will be most advantageously aided and directed by a judicious course of instruction by lectures, or by "private preceptorship mainly," with "the school as its complement." The Medical Faculty of Harvard University, though intending to address themselves to the latter question, have, in reality, only discussed the former, all the while assuming the existence of an antagonism between the system of teaching by lectures, if the course be too prolonged, and the habit of active personal study. Your Committee do not admit that such antagonism exists. On the contrary, they are firmly convinced that "the active, practical discipline of the mind" is one of the most certain results of the right use of the system of teaching by lectures. Indeed, we have always thought that it was the failure of the old system of exclusive text-book study and recitation to secure this practical discipline of the mind, that led to the adoption, in all the higher institutions of learning in Europe and America, of the practice of public lecturing. Under this system the intelligent student, following in the train of thought pursued by the lecturer in his discussion of doubtful questions, in his analysis of complex phenomena, and in his inductions of general truths from particular facts, learns to perform, for himself, the works so difficult to those who have only studied by a mechanical routine of unreflecting labor, of critical analysis, and inductive generalization.

In order, however, to insure the full success of this system by a right use of it, and by preventing that abuse which is truly obnoxious to the criticism of the Medical Faculty of Harvard University, and which, unhappily, is too prevalent, it is indispensable that searching examinations should be given, each day, on the lectures of the preceding day. It is this combination of the two systems which is productive of the most wholesome results. Those who have had experience in this matter know how wonderfully

the faculties of the mind are stimulated in listening to a discourse on the topics, arrangements, and illustrations in regard to which we expect to undergo a public examination. It is objected that "such examinations amount to very little" when the class is large and each student is examined at long intervals only. As a test of the industry of an unwilling student who is to be stimulated *only* by the fear of disgrace, these examinations would, it is admitted, amount to very little. But it is a great mistake to assert that, as a means of instructing students of average capacity and ambition, their usefulness is much impaired by the large size of a class. A particular question, although addressed to an individual, is nevertheless heard by all, and they may mentally answer it, comparing their respective answers with that of the reciting pupil, or with the explanations made by the teacher. Thus, all may derive equal benefit with the person who alone was questioned. Nor will there be wanting a sufficiently potent stimulus, in the case of the candidates for graduation, in those, at least, who know that although they may not have to take part in the recitation of the day, they may be called upon to answer the same questions at their final examination. If the teacher propounds his questions, as certainly he should, in such a form as to throw upon the student the burden of analyzing a complex subject submitted to him for elucidation, it is impossible to exaggerate the benefit which the latter may derive, both in giving precision and completeness to his knowledge of the particular subject, and in the mental discipline which is incidental to the process employed in its acquisition. It must be evident that such examinations will be more useful if conducted by the lecturer himself, than if left to the performance of a third party, especially if the latter did not himself hear and enter into the spirit of the lectures. Your Committee perceive much to condemn and little to approve in a system which throws the whole responsibility of the application of this important instrumentality of instruction, upon a class of "Grinders," the extent of whose popularity is measured by the success with which they prepare a pupil to pass his examination with the minimum expenditure of time and labor, and consequently with the smallest amount of actual attainments.

The feasibility and the value of the system which is here recommended, have been tested in the Medical Department of the University of Virginia by an experience of a quarter of a century. In this institution the term of medical lectures is of

the same length as the academic session, namely, *nine months;* and never are more than three lectures delivered on any one day. Each lecturer, however, occupies an hour and a half for lecture and recitation, the latter exercise consuming about one third, or between a third and a half, of the whole time. The class of medical students is about one hundred and twenty-five in number. Of these not more than twelve or fifteen, often not so many, recite at the same time; and yet there is not the slightest ground for believing that the average dividend of benefit to each student is less now than it was ten years ago, when the number did not exceed forty or fifty. We learn that this system is in successful operation in the Medical School of Winchester, Virginia, and in the Medical Department of the University of Michigan. An exposition of some of the peculiar features of the last-named institution, as contained in the report of Dr. Pitcher, read at the last Annual Meeting of the Association, appears to have met with the unqualified approbation of the members then present. Let it be observed that most of those peculiar advantages are incidental to the long-term system, and to that alone.

It will doubtless be considered a serious objection to the proposed reform, that, inasmuch as the more trifling extension of the term from four to six months has not been generally accepted, there can be but little hope that a more radical change in the same direction will meet with favor. The Committee are not unmindful of the difficulties which are inseparable from every attempt to make sudden and extensive changes in any system which is of long standing, and the perpetuation of which is supported by manifold real or imaginary interests. But, on the other hand, they do not believe that the difficulty of procuring the adoption of this reform in many of the centers of medical education, will prove to be insuperable. They do not suppose that more than a very few of the existing medical colleges will adopt a system so radically different from that in connection with which they have enjoyed, and continue to enjoy, a large measure of public patronage; but they do believe that new institutions, the incorporation of which, by legislative authority, the profession is utterly powerless to control, will be induced to make an experiment, the success of which, as regards the thoroughness of the instruction given to the pupil, cannot be doubtful. At all events, the Committee feel it to be their duty to recommend such a system of medical education as, in their opinion, may comport with the

existing state of the medical sciences, and satisfy the reasonable demand of the profession, rather than to speculate upon the probabilities of its adoption by the medical schools of the Union. If it is true that the profession has ceased to be an educated class, and no longer occupies that elevated position in public confidence which was once accorded to it, we conceive it to be more important to indicate the probable sources of this deplorable degradation, and the means of real and effectual reform, than to inquire what the schools are willing to do, in an emergency which they have been largely instrumental in producing. We hasten to add, that for the attainment of the advantages of that feature of the proposed reform which consists in the extension of the term of lectures, we do not consider it essential that it should be universally adopted. We shall presently express our views with reference to the means by which a higher grade of general and professional attainments shall be rendered indispensable for him who seeks an admission into the ranks of the profession. If this be secured, it will be a matter of comparative indifference by what means the result may have been accomplished in any given case. For that class of students who reside in our cities, and enjoy the advantages of private instruction by competent and zealous teachers, possessing all the necessary appliances for practical illustrations, a shorter course of public lectures may not only be sufficient, but, in some instances, preferable. But, as respects that far more numerous class of students who come from the rural districts, the case is very different. Many of these pass the interval of eight months, between the end of the first course and the commencement of the second, in desultory reading, and without the benefit of suitable instruction or guidance. This course cannot be otherwise than detrimental; and, for the benefit of all who pursue it, an extension of the term is urgently needed. The Committee would therefore suggest the expediency of some action on the part of the Association, by which encouragement will be held out to such schools as may be willing to make trial of a reformatory plan, the general features of which are as follows: 1. The extension of the term to eight months, with not more than four lectures per diem at any period of the course, and not more than three during the dissecting season. 2. The exclusive assignment to such schools of the whole ground-work of elementary medical education, and the subsequent transference of the advanced pupils to schools, whether private or public, in which they should be taught to

make practical application of the principles which they had previously acquired.

The increase of expense necessarily dependent upon the acquisition of a medical education under such a system, constitutes a real difficulty; but, after much reflection, the Committee are of opinion that no adequate reform can be obtained without some additional pecuniary sacrifice as well as mental labor on the part of the student. If the Association possessed the means of compelling the schools to adopt this system, the Committee would regard it as inexpedient to exercise such prerogative. It has been seen that very different views are entertained by the faculties of some of the most respectable institutions of our country. Their frank avowal and earnest defense of those opinions cannot fail to command our respect, how widely soever we may dissent from their conclusions. But let others who may be disposed to make trial of the proposed reform, be encouraged to do so; and then let the tree be judged by its fruits.

3. The omission, in the curriculum established by many of our medical colleges, of one or two important branches of knowledge, is an evil which, in the present state of the medical sciences, and in view of the relations of the medical profession to society, imperatively calls for redress. Your Committee are fully aware of the arguments which may be advanced against large additions to a curriculum already disproportionate to the short term allotted to the course. They would not, therefore, for the present, recommend any considerable additions. They would, however, insist upon the urgent necessity of embracing in the regular curriculum the study of physiology, and of medical jurisprudence, both of which are omitted in many of the schools. In a large proportion of these institutions, physiology is assigned to the professor of special anatomy, whose other duties preclude him from the possibility of doing more than merely stating the office of each organ, without inquiring into the conditions of its action, and consequently without elucidating the general laws of vitality. The gradations of organization throughout the animal series, furnishing, as they do, the data upon which most of the inductions of human physiology are based, and therefore felicitously characterized, by the great Cuvier, as so many experiments made for us by nature herself, should be understood by every student of medicine. The study of the outlines of comparative anatomy, as a part of a complete course of instruction in physiology, has

an importance which can scarcely be overrated. It may be urged that while this position holds good with reference to those who are to undergo a process of training for the prosecution of original researches, it will suffice for the great body of students, whose object it is to prepare themselves to practice the healing art with credit and success, to adopt, upon the authority of others the general principles of physiological science. But this is just the kind of instruction which we hold to be not only valueless but detrimental.

It is the unanimous testimony of all competent teachers, that they experience much difficulty in placing their students in a position to appreciate an abstract principle or general truth, in any other way than by leading them successively along the several paths which converge to that central point. A pupil may commit, *memoriter*, the words in which a general truth is enunciated; but he not only finds it difficult to retain them in his memory, but he derives little benefit even if that difficulty be overcome. The acquisition does not truly become a part of his mental furniture, and is not appreciated as the living truth. But let him be made to apprehend the reality and the significance of the particular facts upon which the induction is based, and to form the conclusion by the spontaneous exercise of his power of generalization, and the truth will strike upon his mind with all the vividness of a personal experience, while the intellect will be invigorated and rendered more acute.

All who have had an opportunity of observing the discreditable figure made by medical witnesses who are subjected, by ingenious barristers, to a searching cross-examination before courts of justice, need no other proof of the desirableness of ample and exact instruction in the principles and facts of medical jurisprudence, as a part of the collegiate training of medical students. Setting aside, then, the higher and more binding motives connected with the conscientious convictions of duty, the sense of disgrace attached to scenes in which, by a public exhibition of deplorable ignorance on the part of a witness, not only he, but the profession to which he belongs, is exposed to ridicule and contempt, should suffice to induce the members of this Association, collectively as well as individually, to use all legitimate means to reform this evil.

In many instances, an attempt to enlighten the court and to subserve the purposes of justice, most signally and to the great

surprise of the bench, the bar and the spectators, fails. Such failures sometimes occur to medical men accredited by the community in which they live as men of intelligence, learning, and worth, and arise from preposterous attempts to give, upon the spur of the moment, ample and satisfactory information in regard to points the proper elucidation of which would require a careful examination of authorities, and perhaps an exact numerical analysis of well-authenticated cases the records of which are scattered through a number of volumes. Again, it not unfrequently happens, that the problem submitted to the witness for immediate solution is one which is not only without a parallel in his own experience, but has not been solved by the observations of others. In such an emergency, the strictly conscientious witness will avow his ignorance; and if the question be one susceptible of elucidation by experiments, or by direct observation, and he be an expert, he will demand time for making such investigations. But the Association needs not to be informed with what readiness the half-educated physician yields to the temptation of making a hasty application of his knowledge, and ventures to express his crude opinions with the positiveness which he finds to be expected of him, and which the counsel, perhaps quite as anxious to support their cause as to elicit truth, seek by every means to provoke. The opposing counsel arrays against such opinions, the equally dogmatic assertions of a rival practitioner, until both are discredited, and reproach and contempt are brought upon the members of the profession as a class. The first and most effectual remedy for such disgraceful occurrences, is to impress upon the minds and consciences of medical men the folly and guilt of expressing positive and hastily formed opinions upon doubtful or obscure analogies, and the expediency and duty of confessing an inability to satisfy the desire of the court in all cases in which an authoritative decision is not warranted by their own experience, or by the unquestioned experience of reliable observers. But it is undeniable that the occasions for making such avowals will occur far less frequently to the man who is well instructed in the principles of medical jurisprudence, than to one who, though equally well versed in the other departments of professional learning, has paid no attention to that study as an independent branch of medical science. For, although it is true that a very large proportion of the questions arising in medico-legal inquiries are connected with facts of anatomy, physiology, hygiene,

pathology, and obstetrics, yet these facts require a very different application from that which is made of them by the practicing physician, in the ordinary exercise of his professional calling. Your Committee, therefore, regard it as essential to the welfare of society, and to the reputable standing of the profession, that medical graduates should be required to exhibit satisfactory proof of their acquaintance with the leading facts and principles of forensic medicine, and that they should be impressed, by the precepts of their teachers and by the example of their seniors in the profession, with a due sense of the solemn responsibilities of a medical witness.

4. The profession objects, with much reason, to the entire neglect or very imperfect use of clinical instruction in many of the medical colleges of the United States. As respects some of these institutions, the defect is irremediable, owing to their location in villages too small to furnish subjects for hospital practice. And in some of our larger cities, the seats of the oldest medical colleges in the Union, the hospitals are either entirely inaccessible to the student, or are opened to him under such restrictions as to make it a privilege of little value. In such cases, the schools have been driven to the necessity of finding a substitute in what are termed "college clinics." But even where no other impediment hinders the students from visiting the hospitals daily, those who attend six lectures each day in the college, and are also engaged in the study of practical anatomy in the dissecting room, can find little time or disposition for such clinical observations as will be of any value to them. Hence, it is only the small minority who remain in the city during the summer and autumn that truly derive any profit from the facilities for clinical observation which the city hospitals may afford.

We have almost invariably found that, among even this class of students, only those who have previously graduated can be induced to read, in connection with their clinical observations, the class of books which constitute the elucidators of disease. The undergraduates feel themselves constrained, by the prospect of a coming examination, to confine their reading mainly to the elementary text-books. In view of such facts, your Committee express their hearty concurrence in the position taken by Dr. Pitcher, in his report, and indorsed by the vote of the Association,—"That a familiar knowledge of the elements of medical science should precede clinical instruction." This course is practically adopted

by a large number of the better class of medical students, who pursue clinical studies for a period of from one to three years *after graduation*, either in the hospitals of our own cities, or partly here and partly in Europe. Having dissolved their connection with the schools, in which elementary instruction alone can be adequately given, and in which the second-course students pursue precisely the same studies as those who are attending lectures for the first time, they properly lay aside elementary books, and substitute, in addition to systematic "Clinical Guides," the published records of the clinical observations of those careful and reliable observers who have done so much towards giving precision and certainty to modern pathological doctrines, by authenticating the data upon which they are based, and clearing away the immense rubbish of "false facts" which, as much as aught else, had retarded the progress of medicine as a positive science. By the aid of such accurate clinical reports, carefully studied in connection with the actual observation of cases at the bedside, the intelligent and earnest pupil may add to his own personal experience that of all the eminent clinical reporters whose works he may read. The descriptions there given of the daily progress of the symptoms, and the effects of remedies, can scarcely be appreciated without the aid derived from an examination of cases of the actual disease; but with this aid, that familiar law of our mental organization in accordance with which vividness is imparted to our conceptions by being associated with sensible objects, is brought into operation, and the reported cases rise before the mental vision with the clearness and distinctness of reality.

In immediate connection with this topic, the Committee would again invite the attention of the Association to the importance of other branches of medical science which may be studied practically. We may specify practical chemistry, the use of the microscope as an instrument of research, and as furnishing data upon which a differential diagnosis may be based, practical midwifery, and operative surgery. It is a fact which may well elicit our mutual congratulation, that efficient instrumentalities for thorough practical instruction in all these branches, are being brought into operation in various parts of the Union. The advertisement of "the New York Preparatory School of Medicine" is now before us. Such associations, if they fulfill their promise, will deserve the encouragement of the profession. We think, however, that the use of the term "preparatory" may mislead the public, to the det-

riment, perhaps, of these auxiliary schools. All instruction received by a pupil is preparatory to the great business of life; but in no sense can such instruction as these schools propose to give, be considered preparatory for that of the incorporated schools. The latter is elementary, and should precede the practical. We shall presently consider, under another head, the objection that may be raised on the score of the difficulty of inducing many students to apply for such instruction, after having received the diploma which entitles them to practice medicine and surgery.

5. This last remark suggests the consideration of the most flagrant and mischievous of all the defects of American medical schools, and the correction of which is essential to the attainment of much or any benefit from any other projected measure of reform. We refer to the disgracefully low standard of professional knowledge and general mental culture exacted of the candidates for the degree of doctor of medicine. There is, we fear, no reason to believe that any degree of reformation in respect to this evil has hitherto resulted from the reform agitation which has occupied so large a share of the attention of the profession during the last eight years. On the contrary, it is believed that in some of the most respectable colleges of the country which have manifested a disposition to adopt several of the measures of reform recommended by the Association, a sort of compensation for the new exactions has been allowed to the unaspiring student, by lessening the rigor of the examination for graduation. It is in view of such facts, that we desire to fix the attention of all our fellow-members of the Association upon the importance of greatly elevating the standard of attainments which should be exacted of candidates for graduation, before any practical benefit can be expected from the other projected reforms which have repeatedly been sanctioned by our votes.

The evil in question having originated, in a great measure, in the active competition of rival schools, some have contended that it can only be remedied by diminishing the number of these institutions. If this were so, we should be obliged to abandon all hope of relief, and submit to a perpetuity of disgrace; for those institutions now possess chartered rights, which it cannot be expected that they will relinquish. Nor is it probable that more good than harm would ensue from a diminution of the number of the schools. If students could obtain admission into the ranks of the profession *only* after giving such satisfactory proof of attainments and mental

discipline as would test the thoroughness and the judicious character of the instruction they had received, the rivalry between the separate schools would consist in efforts to elevate the standard of medical education by enlarging the curriculum with the progressive advancement of the medical sciences, and by perfecting the means of illustration and exact demonstration. The only available remedy, then, in the opinion of the Committee, is the establishment of boards of examination, distinct from the faculties of the schools. It does not suffice to have a committee of the State Society present at an examination conducted by the faculty of the school. The desideratum is to have a uniform standard throughout the Union, or throughout the limits of each of those States in which such a board may be appointed.

This scheme, of a divorce between the teaching and the licensing powers, meets with no favor from many of the most zealous friends of medical reform, some of whom found their objections to it upon the presumed impossibility of securing the necessary action of the State legislatures, while others insist upon the inexpediency of committing the affairs of the profession to the control of partizan politicians. These difficulties need not, we think, stand in the way of effecting the desired object. In those States in which a diploma from a regular college, or a license from the State Society, is required to legalize the practice of medicine, as, for example, in New Jersey, we presume that there will be little or no difficulty in assigning the matter altogether to the Society. In those States, on the other hand, in which there are no laws regulating the practice of medicine, and where, consequently, the collegiate diploma has no legal character, its value being solely due to the popular appreciation of it as a certificate of professional attainments from those who are supposed to know the character of the graduate, and are presumed to give truthful testimony, it seems reasonable to believe that the united voice of the profession would be as potent in exacting the possession of a license from an extra-collegiate board of examiners, duly appointed in conformity with a general plan sanctioned by the American Medical Association, and adopted in all the States of the Union, as it now is in inducing young men to procure a collegiate diploma which is not necessary to legalize the practice of their vocation. At first, no doubt, many would shrink from undergoing a test the result of which might be doubtful; and such persons would endeavor to magnify the value of their collegiate diploma, and to underrate

the importance of an additional license; but all the better class would cheerfully present themselves before the licentiate board, and others would soon find it to be their interest to do the same. Moreover, the reflected influence upon the schools, in inducing them to elevate their standard lest they should be discredited by the wholesale rejection of their graduates by the licentiate boards, would be of immense service, although a majority or a large proportion of their graduates might refuse to undergo the additional test. This is precisely the way in which we expect the plan to work most favorably for the cause of medical education.

After many years of anxious reflection upon this subject, the Committee feel a strengthened conviction that the scheme is feasible, and that, at the least, it deserves trial. The members of the medical profession in Virginia have, by a large majority of their representatives in a State Convention held in Richmond, in December, 1846, and in several successive annual meetings of the State Society, expressed their conviction of the necessity and the practicability of this measure. The faculties of the medical schools of the State have repeatedly and publicly avowed their acquiescence. Honest differences of opinion exist in respect to the propriety of several of the measures of reform recommended by the Association. Let all unite in carrying out this scheme, and all other measures will settle themselves. The Committee are happy to perceive that this subject was brought to the notice of the Association at the last Annual Meeting, by the retiring President, Dr. Wellford, in an able and eloquent valedictory address. His views appear to have been received with favor, if we may judge from the passage of a resolution to refer this subject to a special committee of which he should be the chairman. We have been informed by Dr. Wellford that he will not present his report until the meeting of next year; and this fact seemed to justify a more extended notice of the subject by this Committee, than might, otherwise, have been admissible. We look with confidence to the forthcoming report from that gentleman, for a convincing demonstration of the advantages of the proposed reform, and for the suggestion of a practical mode of insuring its efficient operation.

To illustrate the position assumed by the Committee, that, provided the examinations which are intended to test the fitness of the candidate for admission into the ranks of the profession be sufficiently rigid, great latitude of discretion may be safely allowed to the schools in regard to other measures of reform, they would

again make a brief allusion to the experience of the Medical Department of the University of Virginia. It was a favorite policy of Mr. Jefferson, the founder and until his death the Rector of the institution, to make actual qualifications, as tested by numerous and rigid examinations, the only requirement for the attainment of collegiate honors. His aim was to *raise*, and not to lower, the standard of education in all the departments of university instruction; and, with this end in view, to require the most positive and unmistakable evidences of attainments, rather than a specific number of courses of lectures, as a condition of graduation. Every precaution is taken to prevent the possibility of the abuse of this system. The qualifications of the candidates for graduation are estimated by reference to the results of the daily oral examinations in all the classes, of which a numerical record is kept, and especially by reference to the results of "seven written examinations for graduation," held near the close of the session, and occupying each the greater part of a day. These examinations are conducted by a committee of the Faculty; and the students, besides being under the view of this committee during the whole time, are required to certify upon their honor that they have not received assistance of any kind in writing their answers. The rigor of these examinations and the high degree of the standard exacted from the graduates, may be inferred from the fact that, while all the matriculates are permitted to become candidates, and about five-sixths do usually announce themselves as such at the commencement of the session, the number of actual graduates is far smaller than in any other American school, being between a sixth and a fifth of the class. Another result of this system, and one which might not have been so certainly expected, is the irrepressible eagerness manifested by the graduates for a grade of clinical instruction, to be enjoyed elsewhere, which in its extent and accuracy shall conform with the thorough elementary instruction which they have just completed. Almost immediately after the close of the session at the end of June, a majority of these graduates reunite in the large cities to prosecute clinical studies under the guidance of approved practical instructors; and both there and elsewhere they are noted for the zeal with which they seek appointments as resident pupils in hospitals, their career in respect to this matter illustrating the truth of the position sustained in Dr. Pitcher's report, "that a familiar knowledge of the elements of medical science should precede clinical instruction."

6. In accordance with what appeared to be the intention of the Association in assigning the consideration of the subject of medical education to a special committee each year, your Committee for the present year have considered themselves as virtually instructed to direct their attention mainly to those defects which seemed to be specially inherent in the "American system," and to the remedial measures that have been suggested from time to time. In the inquiry into these subjects, regard has been had exclusively, or almost exclusively, to but one of the offices of a place of professional education, that, namely, of imparting an ample store of useful knowledge both of particular facts and of general truths and principles. Another distinct and yet more important object in any scheme of education, is to fit the pupil for the practical duties of life, by the discipline of those faculties which are to constitute the instruments of his daily operations in the ordinary exercise of his responsible calling. Much may be done towards the attainment of this discipline, as already remarked, by a happy combination of the system of instruction by lectures, with a judicious scheme of daily examinations. But the most important agent in this work is the clinical teacher, under whose superintendence each pupil should be required, to observe cases; keep a record of the observed phenomena; announce his diagnosis and the grounds upon which it is based; indicate the course of treatment which might appear to be applicable upon a rational consideration of the known pathology of the disease, or which an enlightened and reliable empiricism had proved to be efficacious in similar cases; and, finally, to analyze a large number of cases, whether perceived by himself or recorded by trustworthy observers, with a view of enlarging his acquaintance with those general truths that might escape notice in the contemplation of isolated cases. The first crude performances of the tyro should be kindly but faithfully criticised, models of excellence should be held up before him for his study, and such incentives to earnest and patient labor should be employed as might appear to promise benefit. All this is, indeed, so obvious as to have become trite; and if the examination which gives a title of admission into the ranks of the profession were so conducted as to test the student's skill in practical diagnosis, and the extent of his resources, in the management of cases of a certain degree of obscurity, as dependent upon his capacity to deduce conclusions from analogy when more positive data cannot be obtained, such instruction

would undoubtedly be sought by every student, prior to his appearance before the examining board. Nor would adequate facilities for obtaining such instruction, be long wanting. The demand would at once create the supply. The question to which, in this connection, your Committee would desire to invite the attention of the members of the profession, and especially of those who are engaged in the business of medical teaching, has reference to the practicability and expediency of so conducting the process of the preliminary training of candidates for the medical profession, as to qualify them for this work of practical medical reasoning. They are impelled to offer a few remarks upon this subject, by a conviction that certain able and popular writers on the philosophy of medical science, have fallen short of presenting the entire truth, and, in their almost exclusive attention to one aspect of the subject, have disregarded or underrated the value of an important instrument of research in the investigation of medical truths.

Unquestionably one great source, perhaps the main source, of error in medical reasoning lies in the slenderness or inaccuracy of the data upon which premature conclusions are founded. To correct this defect, which, of course, would vitiate all reasoning based upon such premises, Louis and others have systematized rules for the exact and faithful performance of that department of labor in medical inquiries, which consists in *verifying* and *counting* facts. Nor can too much praise be accorded to those earnest and self-denying votaries of science, for the zeal and perseverance with which, undeterred by misrepresentation and ridicule, they have pursued their own arduous labors, and for their efforts to enlist the energies of youthful talent in carrying on the good work. But some of these distinguished men have occasionally so expressed themselves as to imply that observation forms the whole work of scientific investigation, disregarding or disparaging, by implication if not in direct terms, that branch of the problem which consists in the proper *interpretation* of the facts, the occurrence of which has been substantiated by the results of the numerical analysis. Counting and classifying the observed phenomena may suffice for the solution of a certain class of problems, such as the following: a disease being selected for investigation, to determine, by the numerical analysis of a sufficient number of cases, the relative frequency of various pathological changes and symptoms; or to determine the absolute or relative value of a particular remedy, or of a special mode of treatment,

by recording the results of such treatment, in a large number of cases, as compared with those which have been substantiated in connection with other methods of treatment. Louis was warranted in affirming, in reply to objectors, that if a sufficient number of cases be taken, the differences between individual cases in one group will be balanced by equal differences in another group. Such groups are therefore legitimately comparable, and from such comparison general conclusions may be safely deduced. The common-sense of mankind acknowledges this. It is a simple case of induction, which all physicians practice and rely upon, even those who decry the numerical process, the only difference being that some practice it carelessly, while others, by counting, insure exactness.

But, on the other hand, there are problems the solution of which the medical practitioner is obliged to attempt, whether it be willingly or unwillingly. He *must* solve them, to the best of his ability. What avails the numerical method when a novel phenomenon or an anomalous group of phenomena is presented for immediate interpretation? It will not, we presume, be denied that, under such circumstances—and they are of almost daily occurrence in the experience of every practitioner of medicine—the physician must be guided, as far as possible, by the light of analogy, the application of which to any given case may involve the use of both the inductive and the deductive processes of mind. Mr. Macaulay has, indeed, undertaken to disparage the value of the rules laid down by Lord Bacon in his celebrated analysis of the inductive process, by supposing a case in which a man rigidly observing these rules, as he erroneously contends, might yet seem to prove that the cause of the prevalence of Jacobinism in England was the bearing of *three* names, and thus arrive at a conclusion monstrously absurd. He proceeds to say that the only difference between such an induction and a legitimate one, "is not in the *kind* of instances, but in the *number* of instances; that is to say, that the difference is not in that part of the process for which Bacon has given precise rules, but in a circumstance for which no precise rule can possibly be given." The complete fallacy of this caricature of the inductive philosophy has been well exposed by the author * of a "Discourse on the Baconian Philosophy," who properly insists that it is precisely the *kind* and

* Samuel Tyler, of the Maryland Bar.

not the *number* of instances which constitutes the difference between the two cases put by Mr. Macaulay. "For if the instances of the three names had been as numerous as the whole Jacobin party, though it would have been a marvelous coincidence, yet no man in his senses would have believed that the bearing three names was the cause of the prevalence of Jacobinism, and simply because the instances are not of the *kind* from which an inductive inference can be drawn, they not being *kindred* facts conjoined by a law of nature." Invariableness of the succession of two phenomena, such, for example, as night and day, does not always suffice to establish the relation of cause and effect; while in other cases we may often rest with perfect conviction upon the existence of this relation between two events the juxtaposition of which we may have observed in a single case. In such a case, the assigned cause is recognized not merely as a "*vera causa*," but as one which *on the grounds of analogy* is known to be capable of producing the observed effect. "Whenever, therefore, any phenomenon presents itself for explanation, we naturally seek, in the first instance, to refer it to some one or other of those real causes which experience has shown to exist, and to be efficacious in producing similar phenomena. In this attempt our probability of success will, of course, mainly depend, first, on the number and variety of causes which experience has placed at our disposal; secondly, *on our habit of applying them to the explanation of natural phenomena;* and, thirdly, on the number of analogous phenomena we can collect, which have either been explained, or which admit of explanation, by some one or other of those causes, and the closeness of their analogy with that in question. Here, then, we see the great importance of possessing a stock of analogous instances or phenomena which class themselves with that under consideration, the explanation of one among which may naturally be expected to lead to that of all the rest. If the analogy of two phenomena be very close and striking, while, at the same time, the cause of one is very obvious, it becomes scarcely possible to refuse to admit the action of an analogous cause in the other, though not so obvious in itself."* It is clear, then, not only that the possession of a large stock of analogous instances will augment our resources in undertaking the task of explaining natural phenomena, but that

* "Discourse on the Study of Natural Philosophy," by Sir J. F. W. Herschell.

very "precise rules" may be given to teach us how to interpret nature as well as how to observe her operations. The value of Bacon's analysis of the inductive process, and of the rules laid down by that extraordinary man, has been too fully attested by the experience of all the successful votaries of positive science, to be discredited by the rhetorical flourishes of the popular essayist and historian.

An American expounder * of the Philosophy of Medical Science would seem, if the phraseology which he occasionally employs be literally interpreted, to repudiate all "reasoning" as an aid in the discovery of scientific truths. And yet, after all, the difference between him and the accredited expositors of the principles of positive philosophy amounts to a mere dispute about words. For after denying, as well he might, that the object of science is to take facts as materials, and build up something out of these facts "by what is called inductive reasoning," which, by the way, is by no means a correct method of stating the position he intends to overthrow, he adds that "the science is in the facts and their *relationships* arranged and classified, and nothing else."

Well, this may be admitted, and it is quite enough. The discovery of the "*relationships*" is exactly what most persons mean by a process of inductive reasoning. It is quite true that the "relationships" are not constructed out of the facts, and no man in his senses ever supposed that they were. But it is equally true that they are not discovered by sensible observation *alone*, as particular facts may be discovered. They are not seen nor made palpable to the organs of touch, but are *inferred* when the events which they connect are observed in a certain order of succession. When the phenomenon is simple, the juxtaposition of its elements may be so close as to be easily substantiated, and the idea of the "relationship" arises immediately to the mind. But in the more complicated cases which daily present themselves to the practical physician, we are constrained to avail ourselves of the light that may be derived from our experience in cases more or less analogous. It is in vain to attempt to extinguish the light which the human mind instinctively kindles for itself, when constrained to form some conclusion in cases of doubt and obscurity. Analogy is, we may admit, "a fertile source of error" and "the fruitful parent of fallacious conclusions," when allowed to usurp the

* E. Bartlett. "Essay on the Philosophy of Medical Science."

office of more reliable data, or to have more weight than may attach to the grounds of a provisional conclusion to be verified or corrected by future observations. In reply to all this, we shall probably be told that a tendency to theorize is the bane of medical investigations, and needs no stimulus. We do not propose a stimulus, but a corrective of the natural habit of premature and unwarranted generalization upon remote and doubtful analogies, by the contemplation of cases in which the legitimate use of the argument by analogy has led to useful discoveries, and by the earnest and thoughtful study of such works as Herschell's "Discourse on the Study of Natural Philosophy," Mill's "System of Logic," Whewell's "Philosophy of the Inductive Sciences," Tyler's "Discourse on the Baconian Philosophy," and the great "Novum Organon" itself.

Your Committee beg leave, in conclusion, to submit to your consideration the following resolutions, as a summary of the principal views embodied in the foregoing Report.

1. *Resolved*, That the views and recommendations heretofore expressed by this Association, respecting the importance of establishing a uniform standard of preliminary education, of extending the term of lectures, and especially of greatly elevating the standard of professional attainments requisite to graduation, be hereby reäffirmed.

2. *Resolved*, That this Association approves and recommends the practice of daily examinations by each professor, as essential for securing "that active, practical discipline" of the mind which is one of the most important ends of collegiate instruction; and believes, not only that such a system might be easily put into operation, under an extension of the term of lectures, but that the whole ground-work of elementary medical instruction might be most advantageously assigned to the schools which may adopt that system, as a substitute for the very faulty one of private office instruction now in common use.

3. *Resolved*, That this Association cordially approves of the establishment of "private schools" duly organized for giving that species of instruction which consists "in demonstrations" and other practical exercises "on the part of the student, instead of the instructor, but still under his direction and superintendence," embracing the whole circle of clinical observation and practice, the use of the microscope, chemical manipulations, and the performance of surgical operations on the dead body; and would

earnestly recommend such institutions to the patronage of those graduates who did not enjoy similar advantages during the period of their collegiate pupilage.

4. *Resolved*, That those medical colleges whose curriculum does not now include full courses of lectures on physiology and medical jurisprudence, be earnestly invited to make immediate provision for supplying the deficiency, and to require the professor of physiology to make an exposition of the outlines of comparative anatomy, to such extent, at least, as may be necessary to enable the student to appreciate the force of the evidence upon which the modern doctrines of physiology mainly rest.

5. *Resolved*, That to insure the efficient and beneficial operation of the proposed measures of reform, the Association considers it essential that some uniform system of examining candidates for admission into the ranks of the medical profession, *in addition to the collegiate examinations for degrees*, should be adopted in all the States of the Union.

6. *Resolved*, That the Association regards as auspicious omens of future progress, the already improved character of our medical literature, and the evidences of an increasing desire, on the part of a respectable number of medical students, for a higher grade of professional education, as exhibited in the patronage extended to extra-collegiate organizations for practical teaching; and that, in view of such encouraging signs, it cherishes an abiding conviction that more thorough and general reforms will be ultimately, though gradually, accomplished. *

J. L. CABELL, M. D., *Chairman.*

* Dr. Cabell not being in attendance, his Report was not read before the Association, and therefore no action was had upon these resolutions.

E. S. LEMOINE, *Secretary.*

REPORT

ON THE

EPIDEMICS OF KENTUCKY AND TENNESSEE.

REPORT OF THE COMMITTEE ON THE EPIDEMICS OF KENTUCKY AND TENNESSEE.

THE Committee on the Epidemics of Kentucky and Tennessee, would respectfully report:—

That they have used all due diligence in procuring returns from such districts as have been visited by epidemics, but regret to say that the results by no means correspond with the exertions made. We have great reason for thankfulness to Almighty God, that the past year has been one of unusual good health. Nevertheless, a few sections of country have been severely visited by dysentery; but from those sections very little has been communicated.

The following is a digest of all the materials which have come to hand:—

TOPOGRAPHY.

That portion of country to which the report of Dr. C. J. WALTON refers, is situated in Hart and Greene counties, Kentucky, in the vicinity of the junction of Little Barren and Green rivers, extending upward, downward, and upon both sides of each river. This section is generally hilly and broken, the soil good, and underlaid with red clay and limestone; heavily timbered with beech, elm, ash, hickory, black and white walnut, and poplar, and on the cliffs with cedar.

About three miles south of these rivers, the Barrens set in. Here the land is more level, presenting a greater variety of surface. The soil is generally fertile, presenting on the surface more or less loose stone, generally known by the name of "*negro-head rock.*" The subsoil is still red clay and limestone. Here the growth is black jack, red oak, post-oak, hickory, and hazle-

nut. The water is strongly impregnated with limestone, and obtained generally from springs ten or fifteen feet below the surface.

FLOYD COUNTY, Ky., of which Prestonsburg is the county town, has a very uneven and irregular surface, and wears a forbidding aspect. The mountains are numerous, and the valleys deep and narrow. The climate is mild, but subject to frequent variations in winter and spring.

FALMOUTH, the county town of *Pendleton* county, Ky., containing about four hundred inhabitants, is situated at the confluence of Main and South Licking rivers, in a valley of about three miles in circumference. This valley, intersected by the two rivers, is level, but well drained and dry. It has very rarely, if ever, been overflown. The water in the rivers never becomes stagnant. The soil is a rich, black loam. The wells and springs afford an abundance of the coolest and purest limestone water. The uplands are uneven, with clay soil and oak forest. The stratified blue limestone is found everywhere, from the beds of the streams to the tops of the hills.

In MONTGOMERY COUNTY, Tenn., the neighborhood in which Dr. Thomas resides, the *Barrens* are divided into two characters of soil. In one portion, there is the deep, red clay subsoil, based upon limestone of considerable thickness, producing hickory bushes.* In the other portion, the clay is yellowish or whitish, "spouty," or wet and less fertile. Here the bushes are the black jack.

METEOROLOGY.

Abstracts of meteorological tables, kept in the vicinity of Georgetown, Ky.† for the years 1852 and 1853, and of tables kept at Memphis, Tenn., for 1853, are introduced into this Report. The abstract for 1852 would have been more appropriate in the

* In the barren regions these bushes grow from six to twelve feet in height, and are called *grubs*.

† The tables from which these abstracts are made, were kept by G. B. Long, Esq., for his own satisfaction alone.

The observations were always made when he was at home, at the proper time; hence, I have thought proper to state the number of observations from which the averages are made: except in a few instances in which a very few observations had been made. Thus, in January, November, and December, no mean at 2 P. M. is noted, although there were a few observations in each month.

report of last year, and would have been there had it been known that the materials had been collected.

There is an abstract of tables kept at Pelham, Grundy county, Tenn., for eight months, from February to September, both inclusive.

Observations taken at Pelham, Grundy Co. Tennessee, for 1853,—*Fahrenheit, under shelter,—by J. N. W. Conn.*

	Minimum.	Maximum.	Range.	Coldest day.	Warmest day.	Cloudy days.	Clear days.	Rainy days.	Snows.	Frosts.	Hail.
February, . . .	28	56	28	28th	2d	20	8	7	4	..	..
March, ...	32	56	24	15th	27th	20	11	7	2	1	..
April, ...	48	78	30	5th	30th	17	13	11	..	..	..
May, ...	63	84	21	10th	31st	25	6	9	..	3	1
June, ...	74	96	22	24th	28th	25	5	3	..	..	..
July, ...	66	94	28	27th	1st	24	7	11	..	..	..
August, ...	75	88	13	18th	8th	18	13	13	..	..	..
September, . . .	70	84	14	28th	12th	25	5	13	..	1	..

At Fayetteville, Lincoln county, Tenn., January and February were mild, with but few cold days, the thermometer never being less than 20° Fahrenheit. The 25th, 26th, and 27th days of January were the coldest of the winter. Yet the weather during both months was cool. Two heavy thunder-storms, one on the 27th, the other on the 28th, occurred in February. In February and March a great deal of rain fell, as also in April, which continued cool. May was dry and cool; and the remainder of the year afforded but little rain. The summer was excessively hot; the thermometer frequently standing at from 95° to 98° in the shade.

The observations as to weather were made every day, whether he was at home or abroad.

Having no rain-guage or weathercock, the number of rainy days and of windy days are substituted for them.

In determining the "monthly mean," I have taken the mean between the temperature of sunrise and 2 o'clock, P. M., of each month. This plan does not seem to have been adopted by the framers of the abstract furnished by Dr. Ray, for 1851, or by Dr. Swain, in his abstract for 1852—one of them giving a greater, and the other a less monthly mean. It appears to me, however, that the plan here adopted is the proper one.

The year 1853 was remarkable for the great *scarcity of caterpillars*, as also of that fly which is so destructive to fruit of the plum kind. Fruits of all kinds were abundant; yet contrary to the fears of many, the year throughout was uncommonly healthy.

1852.

An Abstract of Meteorological Observations made two miles south of Georgetown, Ky., the thermometer being protected by a large porch in a northern exposure.. By G. B. Long, Esq.

MONTHS.	FAHRENHEIT'S THERMOMETER.																WEATHER.					
	Minimum.	Maximum.	Range.	Mean temperature.	No. of observations.	Mean temperature at sunrise.	No of observations.	Mean temperature, at 2 P. M.	Coldest day.	Mean temperature, coldest day.	Warmest day.	Mean temperature, warmest day.	Day of minimum.	Day of maximum.	Least daily variation of thermometer.	Greatest daily var'n of thermometer.	Days of rain, snow, and hail.	Clear days.	Variable days.	Cloudy days.	Thunder.	Windy days.
January,	—10	64	74	.....	31	29.32	0	.....	19th	..	31st	.....	19th	31st	..	..	11	10	4	5	..	3
February,	30	71	41	43.05	29	39.41	27	46.70	12	35°	24	58.50	12	24	2°	25°	9	7	9	4	..	6
March,	22	90	68	51.11	31	46.61	29	55.62	20	29	8, 26	74.00	20	8	2	32	16	12	4	..	5	6
April,	39	82	43	53.50	30	47.36	28	59.64	6	45	30	75.00	7	30	2	23	16	4	8	..	4	4
May,	45	82	37	64.15	23	58.87	18	69.44	..	..	31	72.00	20	8	4	25	9	15	5	2	4	2
June,	50	88	38	67.88	30	58.90	30	76.86	9	57	21	83.00	5, 11	21	2	28	12	12	4	1	5	..
July,	56	94	38	77.06	31	69.39	31	84.74	2	65	28	87.00	3	8	8	22	7	17	3	3	9	3
August,	58	88	30	73.93	31	66.55	31	81.32	11	67	24	81.00	1	15, 18, 24	5	24	16*	13	1	..	..	1
September,	52	84	32	65.41	30	60.73	29	70.10	26, 30	61	2	74.00	27	2	1	22	11	11	1	4	2	2
October,	42	86	44	67.50	14	58.57	9	76.44	..	..	8	77.00	24	8	..	..	7	18	2	3	..	1
November,†	30	..	..	.....	30	41.46	..	.....	..	..	..	.....	15	..	..	..	13	7	3	4	2	3
December,	30	..	..	.....	31	41.90	..	.....	..	..	..	.....	14, 18, 29	..	..	..	13	12	3	4	1	8

* Eight of these are mentioned as "light," or "sprinkles," and two as "heavy."

† "14th and 15th, rain, thunder, and lightning, longer and harder than for many years."

1853.

An Abstract of Meteorological Observations made two miles south of Georgetown, Ky., the thermometer being protected by a large porch in a northern exposure. By G. B. Long, Esq.

MONTH.	FAHRENHEIT'S THERMOMETER.																WEATHER.					
	Minimum.	Maximum.	Range.	Mean monthly temperature.	No. of observations.	Mean temperature at sunrise.	No. of observations.	Mean temperature at 2, P. M.	Coldest day.	Mean temperature, coldest day.	Warmest day.	Mean temperature, warmest day.	Day of minimum.	Day of maximum.	Least variation, thermometer, daily.	Greatest daily variation of thermo'r.	Days of rain, snow, and hail.	Clear days.	Variable days.	Cloudy days.	Thunder.	Windy days.
January,	22	61	39	42.36	31	36.77	25	43.96	26th	25.00	9th	54.00	29th, 27th	9th	*0°	18°	7	11	5	7	..	..
February,	16	64	48	42.41	28	35.39	28	49.43	9	22.00	28	55.00	9	1	0	28	15	7	3	2	2	3
March,	26	76	30	47.49	31	41.22	30	53.76	4	30.50	31	61.50	5	30, 31	0	30	10	12	4	4	..	8
April,	40	84	44	57.64	29	51.72	28	63.58	8	48.00	22	72.00	5	22	0	24	10	9	5	5	5	6
May,	44	86	42	65.91	29	57.93	25	73.88	19	55.00	18	77.00	20	18	6	24	10	12	5	2	5	4
June,	60	102	42	73.31	26	60.27	25	86.36	25	69.00	30	88.00	1, † 25	30	5	28	7	18	2	2	6	4
July,	59	98	39	77.14	24	70.29	23	84.00	20	64.00	3	87.00	14	3	2	25	7	12	3	6	3	1
August,	56	94	38	77.86	28	76.89	24	83.83	30‡	70.00	11, 12	83.00	30	11, 12	4	28	10	13	5	3	6	1
September,	47	89	42	69.10	28	62.14	26	76.07	22	53.50	6	79.50	23	5	3	26	6	14	6	5	2	4
October,	36	80	44	58.67	24	51.12	23	66.22	24	45.00	9	70.00	30	9	0	28	9	16	..	3	1	1
November,	34	72	38	53.82	29	47.79	28	59.85	25	40.00	20	67.00	25	17, 18, 20	0	22	4	10	8	6	..	3
December,	19	50	31	§	26	34.89	..	§	....	....	.....	....	.....	.....	...	...	8	16	1	4	..	4

* 13th, 14th, and 22d, no variation.

† 90 and upward, 7 days.

‡ Not very satisfactory—observations too few.

§ Observations in P. M. too few for any remarks.

The following sanitary report from Dr. Grant, of Memphis, containing many reflections upon the causes of epidemics, does not admit of analysis to suit the plan of this Report. It is therefore incorporated entire.

TABLE A.*

Condensed Table of Meteorological Observations taken from Journals kept at the Memphis Navy-Yard, during 1853.

1853.	BAROMETER.			THERMOMETER.				RAIN.†
Months.	Maximum.	Minimum.	Monthly mean.	Maximum.	Minimum.	Monthly mean.	Monthly range.	No. of rainy days.
January,	30.01	29.06	29.54	63°	20°	42°	43°	4
February,	29.84	29.02	29.43	68	24	46	44	9
March,	29.84	29.12	29.48	72	30	51	52	5
April,	29 74	29.28	29.51	82	43	62	39	10
May,	29.78	29.24	29.51	86	50	68	36	7
June,	29.76	29.44	29.60	95	68	82	27	5
July,	29.70	29.46	29.58	95	68	82	27	11
August,	29.68	29.42	29.55	94	60	77	34	10
September,	29.70	29.34	29.52	88	54	71	34	10
October,	29.86	29.21	29.53	78	36	57	32	5
November,	29.86	29.44	29.65	76	40	58	36	8
December,	29.86	29.06	29.46	68	20	44	48	8

THE SANITARY CONDITION OF MEMPHIS, TENN., IN 1853.

A Letter addressed to W. L. Sutton, M. D., Chairman of a Committee appointed by the American Medical Association to Report on the Epidemics of Tennessee and Kentucky. By GEO. R. GRANT, M. D.

MY DEAR DOCTOR:—By comparing the mortuary tables of the *past* year, herewith sent, with those of the *two preceding years*, furnished from the city of Memphis for the use of the Committee of which you are the chairman, a very marked difference in the

* This table (A) is separated from the mortuary tables, as properly belonging to this place. The mortuary tables are placed at the end of Dr. Grant's paper.

† The instrument heretofore kept for registering the *quantity* of rain which falls at the Navy Yard, being unfortunately broken in the month of January, 1853, this important item is, from this cause, wanting in the above table. In place of it, a column has been added giving the *number of days*, in each *month*, during which rain fell. Three snows fell in February, one in March, and two light ones in December.

mortality will be observable even to the most superficial examiner. This diminished rate of mortality (almost one half), notwithstanding a constant increase of population, is naturally suggestive of reflections, among the first and most important of which will be the *query*, To what is to be attributed the very decisive and striking improvement in our sanitary condition the past year, as compared with its predecessors?

Although your duties as chairman of the Committee on "The Epidemics of Tennessee and Kentucky," do not necessarily lead you to notice the *hygienic* conditions of the places within the limits prescribed for your observations, yet I hope I may be excused for directing your attention to this point, on the present occasion, on account of its importance in affording a more or less satisfactory solution to the preceding question, and as having a significant bearing on the etiology of our diseases.

It is well known to *you* that I have publicly and fearlessly, in the face of much opposition, proclaimed the opinion, that the endemical diseases which have, on former occasions, so fatally visited this growing city, were, in a great measure, owing to the carelessness of our population, to neglected drainage and sewerage, and to ill-devised and imperfectly executed schemes of general *sanitary police* on the part of the municipal authorities.

If it can be shown that, in addition to unusually and highly favorable meteorological conditions, there was a very decided improvement in our public hygienic affairs last year over the two unhealthy, preceding seasons, it will afford presumptive evidence, to say the least, that I was not far wrong in ascribing, heretofore, to "*corporation filth*," &c., much of the sickness and mortality in Memphis during 1851 and 1852; more especially when, as we shall presently see, an unusual degree of health, and greatly reduced bills of mortality were the results of a different state of things in 1853. To a few prominent facts connected with these topics, I wish, briefly, to invite attention, as what I shall present for consideration may, to some extent, go to prove the advantages of *cleanliness* in our domestic and city regulations, and the benefits arising therefrom in the prevention of disease and its attendant evils.

In the absence of any important material for your forthcoming Report from this quarter, owing to our exemption last year from all *epidemics*, and a great diminution of the *endemic* diseases usual among us, I feel the more inclined to trespass on your kind

indulgence in an attempt to trace our unprecedented sanitary condition, for the past twelve months, to what I firmly believe to be its true causes.

It is to be regretted that the *Meteorological Table* sent you affords no information regarding the *quantity* of rain which fell, in 1853, in this vicinity. By an unfortunate breakage of the *rain-guage*—kept at the Memphis Navy Yard—early in January, we have been deprived of the only means we had at command for comparing the amount of rain that fell the past year with that of either of the two preceding years. An inspection of the Table shows, that from April to September, inclusive, we were most bountifully supplied with *water* from the *clouds*, at a time when it is most needed, as there were, in the six months referred to, *fifty-three days* on which rain fell; being an average of very nearly *nine rains* to each of these months.

As early as April, and at short intervals during the succeeding five hot months of last year, as has been just stated, the clouds poured down their torrents in unwonted profusion; the floods of rain washing clean the entire surfaces of every thing exposed to their action, and giving to the city at large such drenchings and purifications as the most devout admirers of cleanliness could wish for. These frequently repeated washing rains, besides the clean and pleasant appearance which they gave to our streets, afforded also to our olfactories and lungs an *atmosphere* of infinitely greater purity than these organs are accustomed to, ordinarily, in Memphis, during the summer months.

As if intended to insure to us unusual blessings, the annual "*June rise*" of the Mississippi river, failed to take place the past season; an event as unexpected as it is rare; and when such a thing occurred before, is unknown to the writer of these lines. Below the junction of the *Mississippi* and the *Ohio* rivers, there was not a swell sufficient to overflow the banks of the former, from the early spring months of last year until the latter part of the past December; its numerous tributaries, much earlier than usual, and for a longer period than is common, being unnavigable except to the smallest class of steamers. As a matter of course we were not subject to the evils, generally experienced by us at the commencement of hot weather, consequent upon its *back-water* filling up and depositing its detritus and its slime into the *bayou Gayoso*—the great *natural sewer* of the city.

This *sewer* being unobstructed during the greater portion of

the year, and carrying off, with each heavy rain, the unwholesome materials washed from the lots, the alleys, the streets, and the gutters of the city, and depositing them in the *river*, into which it empties, beyond the influence of the heat of a summer's sun, most unequivocally aided in the removal of organic remains, that, under different circumstances, would have been left exposed, as in previous years, in conditions favorable for generating noxious exhalations to vitiate the atmosphere, and to poison those who are compelled to inhale it.

In addition to the extraordinary circumstances above mentioned, favorable for promoting the health of our community, the past year, it affords me much pleasure to be able also to add, that several of the *nuisances* to which I have adverted on a former occasion,* as causes of disease in this place, were either removed, or beneficially modified, by the local authorities, before the commencement of or during 1853. Among the most prominent of these improvements, made with a view to promote the sanitary condition of the community, was the removal, from the central parts of the city to beyond its corporate limits, of the *cattle and slaughter pens*, whose filth and stench had contributed in no slight degree to the deterioration of the purity of the air, at least in their immediate vicinities, and how much further it is difficult to say.

It is also true, that the work of *grading the streets*, so extensively pursued in former years, was measurably discontinued the past year, especially after the winter months. Perhaps during no period of twelve months for the past seven years, has there been less done in the way of embankments and excavations on the highways of Memphis, than in 1853. Many of the basins made by this kind of work, heretofore forming "artificial ponds, without an outlet" for the stagnant water they contained, have either been filled up with earth to a level with the contiguous surfaces, or have been drained by suitable underground culverts.†

* New Orleans Medical and Surgical Journal for May, 1852.

† After this paper was written, and the original copy was sent to the chairman of the Committee for whose use it was penned, I had placed in my hands a printed copy of "A Report on the Health and Mortality of Memphis, for the year 1853. By Charles T. Quintard, A. M., M. D." On page 30 of this "report" the following sentence is recorded: "In 1851 the city of Memphis paid for street grading, $27,806 99; in 1852, $40,519 25; in 1853, $40,931 92." The unqualified manner with which this statement is made, supported too, as it is, by FIGURES extended even to the fractions of

If we review the prominent facts and circumstances connected with the meteorological and hygienic conditions of the city of Memphis during the past year, it will be evident, I think, that many things of a favorable character transpired which would, *a priori*, be considered highly conducive to the healthfulness of the community. Disgusting *nuisances*, very detrimental to health, as we have shown, had been removed—*fresh soil* was not as extensively exposed to the action of heat and moisture as in other years—many *basins*, made by former gradings, had been either filled up with earth or drained by culverts—every part of the city was frequently *washed*, during the summer months, by copious and well-timed showers—whilst the *drainage*, through an unobstructed channel, was as free and as perfect as could be desired. Taken altogether, it presents a picture so different from what we had been heretofore accustomed to witness in this place, that we record it with feelings of pleasure, as the hopeful commencement of a new era in our sanitary history. And who can doubt that we are indebted, in a good degree, to the conditions and circumstances alluded to, for our immunity from the sickness and mortality which visited us so severely in former years?

An inspection of one of the mortuary tables (that marked C), herewith to be sent to you, discloses some important facts, to which

dollars, was well calculated to induce me to look more carefully than I had done into the "EARTH-WORK" performed on our streets. I had conferred with those who had served as city-engineers, and with street-contractors, whose opinions coincided with my own; but then, these FIGURES, if rightly interrogated and correctly stated, are "stubborn things" compared with which OPINIONS are as nothing.

To procure all the reliable information within my reach in regard to the extent of the street-grading done in the years alluded to, as well as its COST, I sought the sources whence it could be most certainly derived. Through the kindness of his Honor the Mayor of the city, I was permitted to examine the records, and found the following to be very nearly the sums paid for grading in the years mentioned, viz. in 1851, $24,833; in 1852, $14,211; in 1853, 15,628. I say these are VERY NEARLY the sums paid for this kind of work as found on the records, for I did not think it essential to add up carefully the columns of CENTS.

By this investigation, I learned that a very considerable amount expended for grading during the past year, was paid for preparing several streets, or parts of streets, for planking—for leveling side-walks for paving—for straightening and filling curves on parts of the bayou; and that but little, comparatively, of excavations and embankments was done in the more densely populated parts of the city, most of this kind of work being done near the suburbs.

With these well-ascertained facts now fully before me, I feel more than ever disposed to reiterate what I have said above in my letter to Dr. Sutton, relating to this subject.

I wish to invite your attention before I make any remarks on the individual diseases with which your Committee are more particularly concerned. If you will arrange, in a tabular form, the *diseases* causing the mortality that occurred here last year, making the different *regions* of the human body the basis of a classification, and to this add, in a group, the *fevers* strictly so called, you will perceive that the largest mortality was occasioned by the diseases involving the *organs of respiration*. An inquiry of this kind informs us, that from the acute and chronic disorders of the pulmonary apparatus, a fraction over *one-fourth* of last year's mortality in this city, was induced; and, moreover, that from the diseases of the *thoracic viscera*, more than *double* the number of deaths occurred than from *all* the disorders of the *abdominal organs*, or from all the *fevers*, leaving out the deaths from puerperal peritonitis and scarlatina, included under the head of fevers in the mortality table.

Will it not appear almost incredible that, as far south as the 35th degree of latitude, in a region notoriously subject to bowel affections and to the prevalence of the paroxysmal fevers, our mortuary statistics would furnish such results? That two diseases of the lungs—*pneumonia* and *consumption*—would prove to be the causes of nearly one-fourth, or twenty-five per cent. of the mortality of (what is called in some sections) a *southern* city, would scarcely be credited, did not figures demonstrate the truth of the assertion. But it is so; and the time is, perhaps, not far distant when one or both of these diseases will be classed among the fatal scourges of more than one southern locality!*

Early in the month of January of last year, one of our citizens

* The late Dr. Hester, who was the able editor of the New Orleans Medical and Surgical Journal, and also Secretary to the New Orleans Board of Health, for several years, used the following language, in the number of his Journal for May, 1853, page 847, in an editorial under the caption, "CONSUMPTION IN THE SOUTH:"

"It has become a popular error, both in and out of the profession, to suppose that consumption is developed almost exclusively in northern latitudes—the disease being of rare occurrence in southern regions. Observation and a little attention to facts will, we feel convinced, correct this to some extent fatal error.

"Statistics, if carefully interrogated, will go far to place this subject in its true light before the profession and the public; and it becomes us of the South to meet it at once, and publish the facts to the world.

"Look at our weekly bills of mortality! Are not nearly ONE-FIFTH of these put down as caused by phthisis pulmonalis? most of whom are old residents of the city, or natives of the place."

returned with his family of two children—the youngest aged one, the other two and a-half years—from Indianapolis, Ind., whither he had been on a visit among relatives. Finding *scarlet fever* extensively prevalent at that place, he remained there but one day, when he removed four miles to the country. He had been there but a few days when a child, belonging to the family at whose house he was staying, sickened with this disease; and a few days thereafter his youngest was attacked by it. Becoming alarmed, he started for home, reaching here a few days before the decease of his infant. But a few days elapsed after the death of his younger child, before his elder sickened with the same disease, and died in ten days, leaving the parents childless. These are the two deaths reported as occurring from *scarlet fever*, in the month of January. They were the first cases of the disease seen in Memphis, that I am aware of, for a long time, and were evidently contracted in another locality.

Almost coincident with the deaths of these two children, scattered cases of *scarlatina* were met with in different parts of the city, remote from each other, none of the subjects of which had been exposed to infection, so far as is known. In the family where the disease first occurred, a few colored children had been daily exposed to the disease by being constantly near the sick, yet they escaped an attack. How much they were indebted for their exemption to the *extract of belladonna*, given as a prophylactic, I am unable to say. Of one thing, however, I am certain, that the cases seen by me were in no wise dependent upon contagion or infection for their causation.

In a purely sporadic form—now recurring, then disappearing, and again returning—*scarlatina* continued to furnish cases for treatment, for nine months of the past year, the cases as a general rule being few at a time. The entire *mortality* from it being only *seven* during the year, is the best evidence of its non-malignant character.

In the few cases that came under my observation, the characteristic efflorescence was distinct, the febrile excitement was moderate; and the throat affection, though present to a greater or less extent in every instance, was in none of dangerous import. In a majority of the cases, the patients were convalescent within the first week. I was not troubled by any unfavorable sequelæ, except in one instance; where the little sufferer became *dropsical* from effusion into the general cellular tissue, from

exposure to cold, after having had a very mild attack of the disease.

Account for it as we may, it is nevertheless a fact, according with my observation, that *scarlatina* very seldom prevails extensively, or in a very malignant form, in places subject to the paroxysmal fevers. I am acquainted with sections of country in one of the oldest of the Southern States, where this disease was almost unknown twenty-five years ago—when intermittent and remittent fevers were then the scourges of the population—that have since that time, from age, and agricultural and other improvements, become almost entirely exempt from the prevalence of the latter-named forms of fever, to suffer from the frequent visitations of diseases of a widely different character, the most common and fatal of which are epidemics of *scarlatina.*

In Memphis, this disease is seldom met with; and I feel pretty confident that, on full investigation, a similar exemption would constitute the *rule* in other places noted for the prevalence of *malarious* fevers.

The *treatment* pursued by me in the cases of scarlatina which came under my care in 1853, had for its object the prevention of secondary complications, by the removal of conditions tending to increase vascular excitement and local inflammation. To secure this purpose our patients were kept in bed, even in the mildest cases, in a room of moderate but equable temperature, well ventilated, on a very restricted liquid diet; our *medication* consisting, in the main, of small doses of a solution of *sulph. magnesia*, with minute portions of *pulv. ipecac.* repeated as frequently as individual cases seemed to require. When ulcerations were found on the tonsils, they were touched, occasionally, with an alcoholic solution of *creosote*, varying in strength with the characteristics of the sores. As an *external* application to the throat, the *volatile liniment*, or a liniment made of equal parts of *spts. turpentine* and *olive oil*, was used. This mild course I found sufficient to aid my patients in passing safely through the disease to a favorable termination.

I am not of those who believe scarlet fever can be "cut short" by treatment; yet, ever willing as I am to give my patients the benefit of any measure, if well recommended, especially when no injury is likely to accrue to them from its use, I would not hesitate, in obstinate cases or in violent attacks, to try the apparently ridiculous application of *fat* to the entire surface of the body, of

late so highly lauded by some of our transatlantic brethren as a cure for scarlatina.

Measles prevailed here, more or less, in scattering cases, during the whole of last year. It is not risking too much to say, in the absence of positive proof, that the cases were more numerous than during the previous year. In both seasons the disease was far from being of a malignant character; although the mortality ascribed to this cause in 1852, would indicate differently had it not been explained.* In my report to you embracing the latter-named period, I attributed a portion of the mortality found on the records for that year, to the *bowel affections* succeeding the subsidence of the former disease during the months of May, June, and July, when these complaints were extensively and fatally prevalent. That this opinion was not without foundation in truth, will appear the more probable upon examination of the relative mortality of the two forms of diseases just named, during the *past* year when there was no *cholera*, and when our ordinary endemic bowel affections were comparatively few and mild. By referring to table C, at the close of this paper, it will be seen that in the months of May, June, and July, there died in Memphis, in 1853, of *diarrhœa*, 12; of *dysentery*, 8; of *cholera infantum*, 2: and of *measles*, 4; making an aggregate of 22 deaths only from *all* the bowel complaints; whilst in 1852, during the same months, the mortality from *diarrhœa* alone was 28,—to say nothing of the 62 deaths from *cholera* and other *bowel complaints* in the same period; and the deaths charged to *measles* are set down at 35, and that, too, at a time when, as above stated, the number of cases under actual treatment was not greater than in the corresponding three months of the past year. The entire mortality from *measles*, throughout the whole of 1853, being only 11 in number, is conclusive evidence of its mildness, and exhibits a striking contrast with the 41 deaths reported from the same cause in 1853.

To give in detail the *symptoms* of measles, where nothing extraordinary characterized the disease, would be a work of supererogation in a paper like this.

Of the *treatment*, where so little was required, nothing of interest can be said. I must, however, avail myself of the opportunity here afforded, of entering my protest against the common practice of drenching patients sick of measles, with "*hot teas*" and "*hot*

* Vide Amer. Jour. Med. Scien., for July, 1853, p. 108.

toddy," given, as is said, "to drive out the disease," especially after it has come "*out*" as thick as it well can. A much more rational practice, in ordinary cases, and one that is highly gratifying to the sick, is to allow *cold* acidulated drinks freely, with an anodyne at bedtime to allay irritation, if there are no attendant circumstances contra-indicating the use of the latter.

Occasional cases of *whooping-cough*, in families where the children had been exposed to the infection producing it, were met with here at different times during the year just ended. The fact that but *two* deaths are reported to have occurred from it, is sufficient evidence of its mildness and restricted prevalence.

Among the various remedies recommended for the amelioration of the distressing cough, I am disposed to place most reliance upon *alum*, as recommended by Dr. Condie and Dr. J. F. Meigs, in their respective works on the diseases of children. We are seldom called on to prescribe for whooping-cough, in this place, until the disease has fully declared itself—that is, after the spasmodic character of the cough is plainly developed. It is during the continuance of this condition that I have found *alum*, in conjunction with *ext.* of *belladonna* in small doses, very advantageous.

On consulting my "Journal of the prevailing diseases, &c., of 1853," I find the following entries recorded: "The sickness increased considerably from the 15th to the 29th of May. A heavy rain fell on the night of the latter date, accompanied by much lightning and thunder. The bowel complaints then beginning to be prevalent were much fewer in number a few days thereafter." In another place it was written: "*Diarrhœa* and *dysentery*, especially the former, so prevalent here usually at this season (June), have furnished fewer cases for treatment than I ever noticed before in this month." To the same effect are the observations recorded in *July*. These three months, in unhealthy seasons, give a greater mortality than any others of the same number; a majority of the subjects being *children*, and the principal outlets of life the *bowel complaints*. During these months in 1852, the *deaths* among children—of 5 years of age and under—were 117, whilst in the corresponding periods of 1853 they only numbered 45; thus showing a most gratifying improvement in our sanitary condition the past year.

As children cannot, with truth, be said to form a part of the "*floating population*;" and as they are more liable to endemical

bowel affections than are adults, the foregoing comparison furnishes undoubted proof of a salutary modification, during the past year, of the causes producing diseases of *local* origin, usually so fatal among a class of undoubted *resident* population.

Owing to the unusual sanitary conditions mentioned in the former part of this paper, *diarrhœa* was seldom met with among our people, the past summer. This fact will have a bearing on the question relative to the causative influence the *well water*, drank by a portion of our citizens, has in its production. In the communication sent to you last year, I gave it as my opinion, derived from investigations on this point, that the *limestone water* from our wells had little or no influence in the causation of this disease in Memphis. It scarcely admits of a doubt, that as many of our citizens used this kind of water the *past* as during the *previous* year; yet we find, comparatively, but few cases of *diarrhœa* prevailing in 1853, when the true cause, a polluted atmosphere, was in a measure absent.

As I entered somewhat fully into the history of the endemic bowel complaints more or less prevalent annually in this section, in a former paper to you, and as nothing novel attended the cases which the past season presented for treatment, it would prove neither profitable nor pleasant to repeat what was then said under the respective heads of *diarrhœa*, *dysentery*, *cholera infantum*, and *cholera morbus*.

Respecting the prevailing fevers, I shall also have but little to say on this occasion; notwithstanding our city, as we shall presently see, was not as exempt from the visitations of the *paroxysmal fevers* last year, as from the ordinary climatic bowel affections. On consulting the record which I kept of every case treated by me in 1853, I find that I prescribed for 178 cases of *intermittent* fever, and for 54 cases of *remittent* fever, during that time. As the intermittent fever, in some of these cases, assumed different forms of periodicity—in one relapse recurring as a *quotidian*, in another as a *tertian*, and sometimes as a *quartan*—it frequently happened that the name of the same individual was recorded at different times, among the cases of this disease then prescribed for. With persons attacked during the *vernal* and then not again until the *autumnal* months, this is especially true. This explanation is deemed necessary, as the number of cases stated as having been under treatment would, without it, probably leave a wrong impression.

To enable you the better to understand to what extent the paroxysmal fevers existed in Memphis, the past season, I invite your attention to a statement published in the January number of the "Memphis Medical Recorder" for the present year. In a summary therein contained of *all* the cases treated in the City Dispensary the past year, we find the whole number to be 1,104. Of these, 508 are placed under the head of *intermittent* fever; 48 under that of *remittent* fever; and 9 are ascribed to bilious fever; making a total of 565 cases—a fraction over one half of the whole number treated—to be assigned to *two* diseases of generally conceded *malarious* origin. This statement will appear the more remarkable when we take into consideration the fact, that, in the table from which it has been obtained, we find the remaining 537 dispensary cases distributed among *seventy* different diseases, casualties, &c.

The above showing may appear contradictory to what has been before said, respecting the salubrity of the past year, when compared with its predecessors, in this vicinity. Yet we do not so consider it. Had the above-named or a similar *charity* been in active operation in former years—when the sickness was unquestionably much more prevalent and fatal—so that a fair comparison might be instituted, the results, we feel well assured, would go to confirm the truth of the statements already made of our greatly improved *sanitary condition* the *past* year.

That both the intermittent and remittent types of fever existed in a very mild form the past season, will not be denied if we admit that 57 patients, affected by the latter disease, were able to leave their habitations to seek advice and medicine at the City Dispensary. As in 1852, we found a majority of the cases of remittent fever which came under our supervision, in 1853, accompanied by well-marked functional derangement of the liver; constituting that variety of the disease often called *bilious* fever. The *symptoms* differed but little from those mentioned in connection with this form of fever in my last report to you, except that they indicated, in the main, a modified form of the disease of unusual mildness.*

* Such readers as may wish to compare the present paper with another of mine on the same subject, for the year 1852, and to which frequent allusion is made in this, are referred to the July number of the "American Journal of the Medical Sciences," of last year.

In the *treatment* of both the types of fever under consideration, our chief reliance was placed on some of the preparations of *cinchonia*, with such aids as the impaired functions of the chylopoietic organs required. After one or more purgative doses of *calomel*, when it was deemed necessary, the bowels were kept open, and the secretion from the liver was promoted, by the use of *aloes* in conjunction with the *sulphate of quinia*. Inexplicable as it may be, it is nevertheless true, that these two remedies, administered in combination, will often exercise a more indubitable effect on the biliary organs than the mercurials. Time and again have I witnessed consistent bilious stools follow the use of the former, after the latter had failed to produce other than thin serous evacuations from the bowels. And what is remarkable, is the smallness of the quantity of the purgative medicine necessary, when thus combined, to produce this effect. From half a grain to one grain of aloes, with five grains of quinia, repeated as often as the circumstances of individual cases may require, rarely fail to prevent the recurrence of the paroxysms of either the intermittent or mild remittent fever. Our usual form of preparing these remedies for adults is the following:—℞. Sulph. Quinia. ʒ ss.; aloes socot. pulv. grs. vi.; aqua. q. s.; M. and divide in pills xii., two of which are an ordinary dose. For children I have found a mixture made of aromatic *syrup of rhubarb* and *quinia* an excellent remedy in intermittent fever, where a mild aperient was required in addition to the anti-periodic.

In the January number of the "American Journal of the Medical Sciences," for 1853, Dr. Pepper invites "the attention of the profession in this country to the undoubted efficacy of the sulphate of cinchonia in the treatment of intermittent fevers," in a well-written article, which induced me on his recommendation, and that of previous writers on the same subject, to give the remedy a fair trial the past year. I administered it in the same doses, and in the same combination with a purgative, as I did the *quinia*, with as gratifying results, and found it to produce, as a general rule, less distressing effects on the auditory nerves than the latter. With patients who were known to be peculiarly susceptible to distressing effects from the sulphate of quinia, and whose cases I had heretofore been in the habit of treating with the expensive *valerianate* of that salt, the *cinchonia* proved a very efficacious substitute. We are inclined to the belief that the two salts (quinia and cinchonia), containing as

they do, most, if not all, of the active principles of the Peruvian bark, are capable, by uniting them in the same prescription, of producing equally favorable effects in much smaller doses than when either is relied on separately. Our experience is not, however, as yet sufficiently matured, to enable us to speak with certainty on this point. On some future occasion, after further and more extended trials, I may publish the results of my observations on the effects produced by the combined action of these two potent preparations in the treatment of the paroxysmal fevers.

That there was in this city a very limited number of *typhoid fever* cases the past year, an inspection of the mortuary table will prove; for the number of its victims is generally, we believe, in a pretty uniform ratio with its prevalence, in all places and under all circumstances. In every month of 1853 we find a fatal case recorded from this cause, October and December each furnishing *two*, making a total of fourteen for the year.

Every month except February, in 1852, gave more or less mortality from this disease; which fact, taken in connection with the statement derived from the records of the Board of Health of the past year, would seem to indicate its constant presence among our population, regardless alike of season, general meteorological conditions, or local climatic circumstances.

I have seen nothing in either the symptoms or connected with the treatment of *typhoid fever*, since my communication to you was penned twelve months ago, to change the views then expressed respecting its pathology, and our inability to abridge its duration by any remedial means within our knowledge. On the contrary, every year's observation but tends to confirm the conviction, that the derangements of the *innervation*, so palpably prominent among the symptoms characterizing the disease, are produced by an unknown *poison* acting on the *nervous system* through the agency of *the blood;* and that this poison is not the same that originates the intermittent and remittent forms of fever, as is proven by differences in symptoms and duration, and especially by the failure of an universally acknowledged remedy for the *one* to prove a curative agent in the *other*.

In conclusion, it may not be uninteresting or unprofitable to advert to the late awful scourge which, for several months of the past year, consigned to the grave so many thousands of our fellow-beings whom the facilities of travel almost make our near neighbors!

To our geographical position are we in a special manner indebted for our exemption from the ravages of the yellow fever, which visited so terribly our Southern friends, the past season. During its prevalence in New Orleans, and the towns and hamlets situated at considerable distances from that point, the steamers plying on the Mississippi river from the former place to the cities above us, occasionally landed their sick at our wharf. Sixty-two of these cases are reported to have been taken to our Hospital, where, we have been informed on reliable authority, they were indiscriminately placed in the vacant beds of wards in which were patients under treatment for other and different diseases, acute and chronic.

Of these sixty-two cases of yellow fever, thirty-three died; being a mortality of a fraction over one-half of the whole number!

From what we have been able to gather from different sources of information, the almost universal opinion in and out of the profession, at all the points where the disease prevailed, seems to be, that it was most unequivocally propagated by *contagion*, or *infection*, in instances too numerous and palpable to admit of a doubt. And yet, north of the thirty-fifth degree of latitude, in the wards of a hospital, the same disease, fresh from the regions of its greatest prevalence, failed to propagate itself in a *single instance*, although the materials favorable for its dissemination were abundant among a class of subjects whose systems were well prepared for the influences of contagion, from the effects of previous disease and dissipated habits.

In the month of August of the past year, I saw, with Dr. Merrill, of this city, a case of yellow fever in the last stage, the subject of it being a young man direct from New Orleans, who sickened the day previous to his arrival here. He was taken care of by relatives who were living in a small tenement; the room in which he lay being the common sitting and sleeping apartment of the family. This individual died, having had all the well-marked symptoms of the disease, including black vomit. No person in the house was afterwards indisposed, though all had been in an unusual degree exposed to infection had the disease been capable of extending itself through that medium, in our atmosphere.

It is not my purpose, neither is this the place, to enter into a hypothetical explanation of the probable circumstances causing

yellow fever to be infectious in many localities, but not so in all. Our design in alluding to the disease in this paper, is simply to record a prominent fact connected with an epidemic unparalleled for its ravages in the history of the diseases of the Mississippi valley.

Table B.

Aggregate number of deaths, of the different colors and sexes, in each month of 1853.

MONTHS.	White males.	White females.	White infants, sex not stated.	Colored.	Total.
January,	20	12	6	13	51
February,	11	5	5	6	27
March,	16	4	5	11	36
April,	13	1	1	10	25
May,	10	9	5	12	36
June,	14	4	4	11	33
July,	16	7	7	11	41
August,	17	7	4	10	38
September,	14	7	4	12	37
October,	14	11	5	10	40
November,	10	1	0	5	16
December,	14	8	3	5	30
Total,	169	76	49	116	410

Of these there died, of children 5 years of age and under,	144
From 5 to 10 years,	17
From 10 to 20 years,	42
From 20 to 30 years,	78
From 30 to 40 years,	41
From 40 to 50 years,	23
From 50 to 60 years,	28
From 60 to 70 years,	13
Over 70 years,	7
Persons whose ages are not recorded,	17
Total,	410

Table C.

Compiled from the Records of the Board of Health, exhibiting the numbers dying of the principal Diseases during 1853; *also, the Months in which each was most fatal.*

DISEASES.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Apoplexy,	..	..	..	..	..	..	2	1	2	1	..	1	7
" pulmonary,	..	..	..	..	1	..	..	..	..	..	..	..	1
Brain, disease of,	1	1	1	1	..	..	2	..	..	..	..	..	6
" inflammation of,	1	..	2	1	6	1	2	3	3	3	1	2	25
Bronchitis,	1	..	1	..	..	..	..	..	..	..	..	..	2
Cholera infantum,	..	..	..	..	..	1	1	..	..	..	..	..	2
Consumption,	6	3	1	6	5	3	3	7	7	3	1	4	49
Croup,	..	..	..	..	..	..	..	..	1	..	1	2	4
Convulsions,	1	2	4	1	..	..	4	1	1	5	1	1	21
Diarrhœa,	3	3	..	..	4	2	6	1	..	2	1	2	24
Dropsy,	1	..	1	1	..	1	..	..	..	1	..	2	7
" of the chest,	..	1	..	..	..	..	..	..	..	..	..	1	2
Dysentery,	1	..	..	..	3	2	3	1	1	5	1	..	17
Erysipelas,	..	1	..	..	1	..	..	..	1	..	..	..	3
Fever,	..	..	..	..	..	..	..	1	1	..	..	1	3
" Bilious,	..	..	..	..	..	..	..	..	1	1	..	..	2
" Congestive,	2	1	3	2	3	3	2	2	2	..	..	..	20
" Intermittent,	..	..	..	..	..	..	..	2	..	..	..	..	2
" Puerperal,	3	..	..	..	..	..	..	..	1	..	..	..	4
" Scarlet,	2	1	..	..	1	..	..	1	2	..	..	..	7
" Typhoid,	1	1	1	1	1	1	1	1	1	2	1	2	14
" Typhus,	..	..	..	..	..	..	1	..	..	..	..	..	1
" Yellow,	..	..	..	..	..	..	..	2	..	1	..	..	3
Heart, disease of,	2	..	..	2	..	..	..	..	..	..	1	..	5
Jaundice,	3	..	1	..	..	..	..	..	1	..	..	..	5
Measles,	..	1	1	2	2	2	..	1	1	..	1	..	11
Pleurisy,	1	1	..	..	1	1	..	..	..	..	..	..	4
Pneumonia,	9	6	10	7	2	1	1	..	2	3	2	2	45
Still-born,	..	1	1	..	..	..	1	..	..	..	1	..	4
Teething,	..	..	..	..	1	1	..	2	4	1	..	..	9
Tetanus,	..	1	1	..	..	..	..	1	..	..	..	1	4
Whooping-cough,	..	..	..	..	..	1	..	..	..	..	..	1	2
Wounds, accidents, &c.	3	1	..	1	..	4	2	2	2	1	..	2	18
Other diseases,	2	1	3	..	1	5	7	5	1	7	1	3	36
Old age,	..	..	1	..	..	1	1	1	..	2	..	..	6
Cause not reported,	8	1	4	..	4	3	2	3	2	2	4	2	35
Total,	51	27	36	25	36	33	41	38	37	40	16	30	410

DISEASES.

INFLUENZA. *Time of prevalence.*—This disease appeared in Fayetteville, Tennessee, about the 10th of January, 1853, and continued epidemic for two months, during which time almost every person, old and young, was affected.

Symptoms.—It always commenced with more or less chilliness, which was succeeded by some fever, pain in the head, back, and limbs, severe dry cough, soreness and some stricture of the breast. The cough continued, in many cases, for a month, or even more. Copious discharge of thin mucus from the nose; hoarseness; tongue covered with a white mucus; pulse quick, frequent, weak, and soft. In a few cases the tonsils and back part of the throat were slightly inflamed. The cough generally became loose in three or four days.

Treatment.—Emetics were useful for relieving the tightness about the chest; and for promoting the secretion of mucus in the bronchial tubes. Aperients were also beneficial. Occasionally some preparation of mercury was called for. Much good was derived from expectorants, especially those into which antimonials entered largely. In some of the protracted cases, they had to be continued for many days. None of these cases proved fatal. Few cases, comparatively, required treatment; yet it is certainly a severe disease upon the lungs, and no doubt tends in a great degree to develop phthisis pulmonalis in those already predisposed.

Number Attacked, and their Age.

Reported from	Color.	Under 15.		15 to 40.		Over 40.		Total.	Av. days attendance.	Reported by
		M.	F.	M.	F.	M.	F.			
Fayetteville, Tenn.,	W.	4	5	5	8	2	0	31	3	Dr. McNelley.
" "	B.	0	1	2	4	0	0			

MEASLES. *Time of prevalence.*—This disease appeared twice in Fayetteville during the year 1853. In April, there were a few cases; but, by great care, it was prevented from spreading. In October, it again was imported from Shelbyville, where it was prevailing extensively. There were not less than 100 or 150 cases in Fayetteville, in a population of 900. There was no death from measles proper; but one occurred from pneumonia, supervening some ten days after the patient had quit the house.

Cause.—A specific contagion. Time of incubation uncertain, generally from nine to eighteen days.

Symptoms.—The eruption came out promptly, and lasted about six days. After the cold weather set in, quite a number of cases became complicated with pneumonia. Diarrhœa also accompanied many cases.

Treatment.—Few cases required much treatment. Dr. McNelley allowed cold water freely, and found it caused the eruption to come out more promptly than tepid drinks. There is a popular prejudice against cold water or cold drinks of any kind, in measles, and it is therefore very difficult to get parents to allow it liberally. Dr. McN. is satisfied that much harm is done by stimulating drinks. Some years since, he saw a family of about eight children all *nearly* killed with *whisky toddy*, given to "bring out the measles." It excited so much fever that the eruption could not come out; and the disease fell upon the lungs in some, and upon the bowels in others. One died; and it was with great difficulty that he saved the others. He thinks, however, that stimulating drinks are indispensable in congestive cases. Mucilaginous drinks are beneficial. An occasional opiate, to procure rest, abate cough, or restrain the bowels, was necessary, and, when important to move the bowels, a little castor-oil.

The diet was restricted.

In cases complicated with pneumonia he applied mush poultices, hot, over the chest; and gave calomel and ipecac. If the poultice and purging did not relieve the pain in the chest, as soon as the skin became cool he applied a blister.

Dr. Grant's views in regard to the treatment of measles will be found incorporated in his paper, which makes a part of this report.

Table showing the Color, Age, and Sex of the persons reported as treated for Measles; together with the Mortality, and Average Days' Attendance.

Reported from	Color.	Under 15.		15 to 40.		Over 40.		Total.	Av. days' attendance.	Reported by
		M.	F.	M.	F.	M.	F.			
Fayetteville, Tenn.,	W.	7	5	1	1	0	0			
" "	B.	1	0	0	0	0	0	15	5	Dr. McNelley.
Pelham, "	W.	4	3	0	0	0	0			
" "	B.	2	2	0	0	0	0	11	8	Dr. Conn.

No case terminated fatally.

ERYSIPELAS. *Symptoms.*—In all the cases seen by Dr. McNelley, the disease was ushered in by a severe chill, which was

followed by fever and all the symptoms of erysipelas. The pulse ranged from 130 to 140 to the minute. In one case there was a relapse, after the eruption had disappeared for about two weeks.

Treatment.—At first he used emetics, and mercurials both as purgatives and as alteratives; later, quinine and wine—convalescence was slow.

In the case which had relapsed, he pursued the same treatment; but, becoming dissatisfied with it, he determined to try the muriated tincture of iron, in doses of 10 drops every two hours, gradually increased to 20 drops every two hours. The good effects soon became manifest. It produced very copious *diuresis* and *diaphoresis;* the pulse fell; the inflammation subsided; and, in three days during which the iron was given, the disease entirely disappeared. This was the only case in which he used the remedy; but from its effects in that, he is induced to place great reliance upon it.

In the vicinity of Georgetown, erysipelas has not been epidemic for at least twenty years; but perhaps a case or two occurs every year. The treatment has been generally addressed to the general system, for the purpose of correcting any aberration from a proper performance of the functions of the digestive apparatus. Topical applications have also been employed, and when the efflorescence has been confined to a small space—say occupying the whole face—they have sometimes seemed to be beneficial. This is especially true of punctures of the inflamed surface, and applications of collodion. But when the efflorescence occupies a very large area, they seem to have little effect.

In the cases seen by Dr. McNelley, the eruption occupied large portions of the body; one spreading over the whole body and limbs, even to the fingers and toes. He says nothing of any local applications. Some years ago, a somewhat singular case occurred in Georgetown, in the person of a female child only a few months old.

The disease commenced in a spot the size of a quarter-dollar, on the labium pudendi, and spread over the entire surface of the body, head, and limbs, excepting a very small space around the mouth and lower portion of the nose. As the inflammation extended up the body, it subsided at the original seat; but a considerable space was always affected after the first few days. When we flattered ourselves that we were about to get rid of it, by its passing out, like the courage of Bob Acres, at the fingers and

toes, it reappeared at the original site. This was repeated three times, with the exception, that the last time the eruption did not travel over the whole surface. As the child was not yet named, I insisted that her name should be "Erysipelas." The parents, however, preferred another.

In this case many remedies were tried, internally and externally. The only internal remedy which appeared materially useful, was an occasional dose of mercury and opium. External applications—Tr. iodine, solution sulph. iron, mercurial ointment, &c. &c.—seemed perfectly useless. This was before the introduction of collodion. In a severe case, occupying the head, face, neck, and upper part of the chest, collodion, although it seemed to exert considerable influence, appeared to fall far short of its usefulness manifested in cases where the eruption was less extensive.

One case surely does not establish the usefulness of any remedy; but at present, perhaps, nothing promises more than the mur. tinct. of iron, as used by Dr. McNelley.

Cholera Morbus.—Dr. McNelley alone has reported cases of cholera morbus. His treatment is that which is most usual. The stomach being usually thoroughly emptied before he saw the patient, his first object was to quiet the irritability of that organ. For this purpose he relied upon large doses of tinct. opii, repeated until the stomach would retain it. Sometimes he gave opium and camphor combined. To restore the secretions to their healthy state, he found calomel or blue mass necessary in a majority of cases.

Cholera Infantum. *Causes.*—Without having any thing new as to the causes of cholera infantum, it may be remarked that Professor Yandell, in a paper in the "West. Journ. Med. and Surg." for Aug. 1853, has adduced evidence proving very conclusively that the causes of this disease are of the same nature as those which produce bilious fevers; that, in fact, the cholera of infants forms one branch of that large stock of diseases of which intermittent and remittent fevers are another type. Yet there seems reason to suppose that cholera infantum is more nearly allied to "fever turned inward upon the intestines," in the shape of cholera, diarrhœa, and dysentery, than to what is usually termed bilious fever. With a view to ascertaining these relationships, as well as the relationship between dysentery and typhoid fever, so far as relates to those counties, the following table has been prepared. It em-

braces all the counties in Kentucky in which a death from cholera infantum was returned in 1852, and exhibits the number of deaths returned in each from bilious fever, including intermittent, remittent, and congestive, as well as those from dysentery, diarrhœa, and typhoid fever.

COUNTIES.	Cholera Infan'm.	Cholera.	Diarrh'a.	Dysent'y.	Bi'lous Fever.	Typhoid Fever.
Adair,	1	1	2	31	3	2
Allen,	1	..	..	7	2	8
Anderson,	2	..	..	3	..	13
Bullett,	1	3	4	8	3	7
Bourbon,	3	36	10	58	..	25
Breckenridge,	3	9	1	37	5	19
Boone,	3	13	..	27	8	23
Butler,	2	11	..	19	7	15
Campbell,	16	13	3	9	7	15
Caldwell,	2	1	1	1	11	5
Christian,	4	68	3	16	10	32
Clarke,	2	4	..	20	1	21
Crittenden,	2	1	4	6	5	6
Daviess,	2	1	2	19	5	9
Franklin,	3	1	1	21	1	12
Fayette,	1	8	..	20	2	12
Fleming,	6	10	..	40	2	10
Fulton,	1	17	1	1	7	15
Gallatin,	2	..	1	9	..	2
Graves,	1	2	5	21	7	21
Grant,	1	9	..	8	..	4
Hopkins,	2	5	..	101	2	9
Henderson,	4	25	..	23	7	13
Hancock,	1	11	..	4	5	5
Henry,	4	4	2	7	..	5
Hart,	4	2	2	49	4	36
Hickman,	2	24	..	8	1	15
Jessamine,	1	..	..	7	1	5
Jefferson,	5	32	6	33	4	14
Kenton,	5	42	5	15	1	17
Larue,	1	4	1	23	..	1
Livingston,	1	4	2	2	8	11
Mercer,	1	3	..	14	1	10
Marshall,	1	2	5	...	5	11
McCracken,	1	3	..	8	6	15
Monroe,	1	..	..	14	..	5
Morgan,	1	1	2	72	..	4
Mason,	5	107	..	38	..	25
Nicholas,	1	4	..	14	..	9
Nelson,	2	21	3	11	6	22
Owen,	3	18	..	1	5	9
Oldham,	9	12	2	19	1	14
Owsley,	1	..	..	22	..	1
Pendleton,	1	6	..	5	..	..
Powell,	3	1	..	15	..	2
Russell,	3	..	..	14	2	..
Shelby,	4	3	5	17	4	21
Trigg,	1	6	2	8	2	20
Wayne,	3	..	..	71	..	6
Warren,	5	7	..	23	8	28
TOTAL,	135	455	75	1019	159	609

It will be seen that of the 101 counties in Kentucky, 50 returned one death or more from cholera infantum. Of these 50 counties, 49 returned deaths from dysentery; 48 returned deaths from typhoid fever, while but 36 gave deaths from bilious fever; 42 gave deaths from cholera; and 25 gave deaths from diarrhœa. It will be noted that in the whole State, 135 deaths occurred from cholera infantum; 722 from cholera; 115 from diarrhœa; 1,923 from dysentery; 247 from bilious fever; and 925 from typhoid fever.

The only inferences which a careful inspection of this table seems to warrant, are, that these diseases occur in every possible proportion to each other, and that the causes which determine the prevalence of one, in preference to either of the others, are exceedingly difficult to understand. As far as this table goes, however, cholera infantum appears to have a nearer relationship to dysentery and typhoid fever than to bilious fever; and dysentery is more nearly allied to typhoid, than to bilious fever.

Treatment.—Prof. Yandell, without descending into the minutiæ of treatment, thinks that, "If the cholera of infants forms one branch of that large stock of diseases of which intermittent and remittent fevers are another type, it follows that the treatment should conform to the same principles." Hence, he advises the use of mercurials in such manner as shall produce consistent bilious purging. As there are cases marked by appreciable febrile exacerbations and remissions, observing pretty regular periods, he considers quinine an important agent in the case. When there is great thirst, with little or no irritability of stomach, cold water may be allowed *ad libitum.* When, with the thirst, there is high fever and irritable stomach, he advises a cold bath, which removes the fever, thirst, and nausea. Cold bath, cold drinks, and ice, are remedies of inestimable value in the treatment of this complaint. Dr. Dewees, many years ago, spoke of the great value of exhibiting to the little sufferer small pieces of ice every few minutes. There are cases in which cold enemata, introduced very gently, exert a happy influence. These are such as show a dysenteric tendency, and are accompanied by much febrile reaction.

Dr. McNelley says, "For the last two years, I have been in the habit of using the sub-nitrate of bismuth, in doses of three to five grains every six or eight hours, until the stools become black. I consider it the best remedy in this affection when it has become chronic. It certainly answers a better purpose, in my hands, than mercurials, chalk, juleps, &c."

DIARRHŒA. *Causes.*—Nothing new as to the causes of diarrhœa is adduced. Long-continued heat is known to weaken the digestive apparatus. The stomach and bowels, thus weakened, are readily thrown into disorder by a sudden reduction of temperature, which chills the skin, and throws an undue quantity of blood upon the internal organs, thus giving rise to cholera, cholera morbus, cholera infantum, diarrhœa, or dysentery. Or food indigestible in quality or oppressive from quantity, received into a stomach thus weakened, may give rise to the same state of things. But the simultaneous concurrence of all these circumstances, a debilitated state of the digestive organs, improper liberties in eating, followed by a considerable reduction in temperature during the night, is a source of great danger. Hence,

The prophylaxis consists in withdrawing the body, as much as may be, from the influences of long-continued heat; in counteracting that influence by cold or warm bathing, as may be best suited to each case; preserving the skin in as healthy a state as possible; and by care in diet—avoiding articles difficult of digestion, being cautious not to oppress the stomach with food even of easy digestion; shunning improper exposure to wet, especially to wet feet, or sudden diminution of temperature, without warding off the ill effects by exercise while exposed; and above all, by always having sufficient covering at night to prevent the deleterious effects of a sudden change of temperature, should it occur during sleep.

Time of Prevalence.—At Fayetteville, Tenn., a few cases occurred throughout the year; but nearly one half of all the cases in Dr. McNelley's practice, were in June.

Treatment.—Dr. McNelley aimed to dislodge any offensive matter from the bowels, by a purgative of castor-oil or calomel, especially if he thought that object had not been obtained by the action of the bowels without aid. He frequently combined an opiate with this purgative, for the purpose of quieting irritation.

In a number of recent cases, after the bowels had been duly evacuated, he found very prompt and decided effects from the mixture of creosote and paregoric, thus:

℞. Creosote, ʒ j.
Paregoric, ʒ iiss.—M.

Of this mixture, 10 drops were given every four hours, to a child from one to two years old. A tea-spoonful is the dose for an adult, at the same intervals.

In chronic diarrhœa, he relies very strongly upon the following:

℞. Bismuth, sub. nitr. gr. xlviii.*
Arg. nitr. gr. iv.
Pulv. opii. gr. vi.
Syrup, q. s.—M. ft. pil. xii.

One of these pills is to be taken every four hours, until the characteristic discharges are altered. In children, the subnitrate of bismuth, in doses of three to six grains, according to age, given in a little sweetened water, has a most happy effect. It will cure when all the usual remedies fail. It is certainly a most valuable remedy in diseases attended with irritation. It does not seem to act as a tonic; neither is it astringent; but it appears to diffuse itself over the surface of the bowel, and thus shield the mucous membrane from the irritating secretions, until it can regain its former healthy state. Or it may neutralize the irritating properties of these secretions. Certain it is, that when the discharges from the bowels become black under its use, the frequency of the discharges is diminished, and their consistency increased.

Table showing the Color, Age, and Sex of persons returned as treated for Diarrhœa, with the Mortality, and average days' Attendance.

REPORTED FROM	Color.	CASES ATTENDED.							FATAL CASES.							Average days' attendance.	REPORTED BY
		Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.		Total.	Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.		Total.		
		M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M	F.			
Fayetteville, T.	W.	9	13	4	1	1	..	32	..	..	..	..	..	..	..	2	Dr. McNelley.
"	B.	1	2	..	1	..	..		..	..	..	..	..	..	..		
Pelham, "	W.	5	3	2	4	..	..	25	..	1	..	..	..	..	1	6	Dr. Conn.
"	B.	3	2	1	5	..	..		..	..	..	..	..	..	..		

Dysentery. *Time of Prevalence.*—In Hart county, Ky. dysentery prevailed from the 1st July to the 1st September. During this period, the nights were cooler than usual for the season, while the days were unusually warm.

At Fayetteville, Tenn. dysentery prevailed principally in the month of July. August and September afforded the next largest numbers; but there were cases in every month in the year; although neither the number nor the severity of them was at all comparable to what had occurred in 1852.

* In last year's Report, this was improperly stated as lviii.

Causes.—We have nothing positive added to our knowledge of the causes of dysentery. Dr. McNelley of Fayetteville, Tenn. thinks that whatever the causes may be, they are not of the same class as those which produce paroxysmal fevers; but rather of that which generates typhoid fevers. His reason for this opinion is the fact that he has never known paroxysmal fevers and dysentery to prevail in the same family at the same time, while he has frequently seen dysentery and typhoid fever coincident. Again, he has never seen or known a case of dysentery to be converted into a paroxysmal fever, and *vice versa;* but it is quite common to meet with cases in which dysentery and typhoid fever seem to be blended. On the contrary, Dr. Walton, of Hart county, Ky. in speaking of the obscurity of the causes of dysentery, says, "How far the cause of epidemic dysentery is a modification of the common cause of fevers, we are totally unable to say at present; but I treated a few cases of flux, in which the complications of the intermittent and congestive forms of fever were plain and well-marked. They yielded readily to treatment, by the additional use of means employed in those forms of fever." He instances the acknowledged influence of sudden changes of temperature, as cool nights following hot days, and the frequency of attacks after cool showers; also imprudence in eating, exemplified by several cases occurring simultaneously immediately after a barbacue.

Dr. Lipscomb, of Shelbyville, Tenn. says that both in 1852 and 1853, he saw intermittent and remittent fever prevailing in the same family and at the same time with dysentery.

Again, Dr. Grant thinks the cause of dysentery different from that of both paroxysmal and typhoid fevers, and is to be found in animal excreta. It may be added, that there are many physicians who believe that the disease is produced by animalculæ. Still, however, they give us no clue to the production of these animalcules.

Prophylactics.—Dr. Walton thinks that free purging with Epsom salts, as soon as the disease makes its appearance in one member of a family, will go far towards preventing it in the others. He states that a small child, belonging to a large family of negroes, being attacked by the disease, he immediately administered a large dose of the salt to every member of the family except one, who was then absent. This one returned home with

the disease after four or five days; whilst all who had taken the salts escaped. It will be remembered that Dr. Armstrong, of Casey county, Ky. last year reported that "All those who would drink freely of the brine from the salt-wells, were almost entirely protected from flux."

Symptoms.—The symptoms of the disease do not seem to have varied much from those usually observed. It may be well to remark, that in Hart county, Ky. it was characterized by "high febrile movement; pain in the back and limbs; soreness of the flesh occasionally, most commonly in one arm; and headache;" while at Fayetteville, Tenn. the pulse never became fuller than natural or very hard. Dr. McNelley did not see a case which he thought would bear the lancet. In Montgomery county, Tenn. a well-marked typhoid diathesis was present. At Cageville, Tenn. the disease was marked by *black* fæcal discharges. At Shelbyville, Tenn., the disease manifested much less of nervous prostration than it did in 1852, and was much less fatal.

Treatment.—Dr. McNelley found no case which he thought would bear venesection. Acknowledging the importance of adapting the remedies to each particular case, his general treatment is what has been called the *Saline.* To quiet tormina and tenesmus, he gave an ounce of sulph. magnesia, or a Seidlitz powder every hour, until free serous purging was effected. This will usually relieve pain and quiet the bowels for twenty-four hours. To maintain this state of things, and to act on the secretory organs, he gave four grains of blue mass every four hours, combined with enough opium or sulph. morphia to answer his purpose. The saline cathartic, followed by the mercurial and opiate, is repeated upon each recurrence of tormina, tenesmus, and dysenteric stools. He keeps hot poultices constantly applied to the bowels. He objects to calomel, the bowels becoming more irritable, and the tongue redder and dryer, under its use. He thinks that mercurial salivation retards the cure, and *knows* it will not *prevent* the accession of the disease. Two instances of this last, he gives as occurring in his own observation.

He cured a chronic case with twenty-grain doses of sub. nit. bismuth, administered three times a day for a week; and another by the combination of bismuth, silver, and opium, as mentioned under diarrhœa. Whenever diarrhœa supervenes upon dysen-

tery, he at once resorts to these pills, which have never disappointed him. He looks upon this combination as peculiarly valuable in cases of this character.

According to Dr. Walton, the treatment consists in bleeding, opium, sulph. magnesia, and injections, with some additional means of little importance. He invariably bled when the pulse would *admit*, and did not wait for any *demand* on the part of the pulse. Neither he nor Dr. Adair lost a patient who had been bled. The cases bled were about ten per cent. of the whole. He gave sulph. magnesia in tea-spoonful doses every three hours, until free purgation followed, and then brought the patient under the influence of opium. The purging was repeated about every alternate day—more or less frequently, according to urgency of symptoms. A favorite prescription with him was,

℞. Sulph. magnesia, four tea-spoonfuls.
Spt. lavend. comp., a tea-spoonful.
White sugar, two drams.

Put into a glass of cold water, and give one third part every three hours, until free evacuations are induced.

The object in giving the salts was twofold: to carry off unnecessary and offensive matter from the bowels, and to produce general and local depletion.

Late in the disease, castor-oil and turpentine may be substituted with advantage, when there is much exhaustion.

He holds that opium exerts a controlling influence over the inflammatory action. Therefore, he was accustomed to leave some opiate in sufficient quantity, with directions to give it whenever there was much distress, in doses sufficient to procure ease. He also gave an opiate whenever the bowels had acted *from the stomach* downwards. If he were confined to one remedy in the treatment of the disease, that remedy would be opium.

Full injections of cold mucilage of slippery elm generally gave relief from the distressing tormina and tenesmus. These should be retained as long as convenient. When the bowels are fully distended, the injection is most commonly retained for a considerable time. It is also a valuable adjunct in relieving the febrile movement.

Rubefacients to the abdomen were also employed with benefit. Brandy, in the advanced stage of the disease, was ordered to be taken freely, and in some instances with the most happy results. One patient took at the rate of a quart of good French

brandy in twenty-four hours. He had been kept under the influence of opium for several days. Dr. W. thinks that keeping patients several days under the influence of opium, renders a free use of brandy imperative; that, in fact, many are allowed to die for the want of it.

Astringents he found serviceable only when administered *per anum.* When given by the mouth, by arresting the vermicular motion in the superior part of the alimentary canal, they obstructed the passage of fæces downwards, whilst the lower portion continued to throw off small, bloody, mucous discharges, without any abatement of the unfriendly symptoms. Cold water was allowed *ad libitum;* ice in some cases. One old lady ascribed her recovery to ice.

He had formerly treated dysentery by calomel and opium, but soon became convinced that all the good resulting from that treatment was due to the opium; while the calomel increased the irritation, and occasioned a return of all the troublesome symptoms.

In MONTGOMERY COUNTY, Tenn. Dr. Thomas treated forty-five cases, of which he bled one and cupped two, without any obvious benefit in either case. His treatment was generally by small doses of calomel and Dover's powder, given from three to six times a day. Cases occurred in which this treatment seemed to do little good. He added spts. turpentine, laudanum, and milk punch, which he found to answer satisfactorily. After this, he was called to a family which seems to have been peculiarly obnoxious to the disease. Three had already died, and five more died under his charge.

In this family a considerable variety of treatment was adopted. Salts and laudanum; nitrate of silver by the mouth and the anus, and in every-sized dose; and calomel and opium, in large and in small doses.

After a review of all the circumstances, he believes the greatest benefit was derived from calomel and Dover's powder, aided by spts. turpentine, and laudanum and milk punch, and by mustard to the abdomen, so as to produce constant redness in white cases, and soreness in blacks.

Dr. T. L. Maddin, of Nashville, Tenn.* treats the disease by administering an injection—composed of decoction of sweet gum

* Nash. Jour. Med. and Surg., Oct. 1853, p. 198.

bark, ℥ ii. to ℥ iii.; nitr. silver, gr. x. to gr. xxx.; morphia, gr. i. to gr. ii.—through a long elastic tube, introduced to the sigmoid flexure of the colon, and gradually withdrawn as the fluid is being forced through it. By this mode, the injection is brought in contact with the whole inflamed surface. This injection is to be given from one to five times a day, as may be necessary. If the bowel is very irritable, it is important to cleanse it by an injection of simple warm or cold water, before the injection above mentioned. In cases where no fæcal evacuation has been observed for several days, castor-oil and turpentine, sufficient to move the bowels, should be premised. When the secretions (biliary) are much deranged, he finds the following prescription of service, viz.

℞. Calomel, gr. vi.
Opii Denarc. gr. iv.
Ipecac. gr. xii.—M.
Make into 12 pills, and give one every three hours.

He also gives some diuretic and diaphoretic mixture; as camphor, julep, and spt. æther. nitric.; but relies mainly upon the anti-inflammatory action of the nitrate of silver applied directly to the inflamed surface of the bowel. Personal attention to the manner of administering the injection is very important, else no reliance can be placed upon its being properly done.*

Dr. J. W. Davis, of Smyrna, Tenn.† commences treatment in all cases with a full dose of Epsom salts, repeated every three hours until copious watery discharges are produced. After the salts have operated two or three times, he arrests their action by giving one or two of the following pills after each motion, viz.

℞. Opium,
Acet. lead,
Blue mass, ãã gr. i.

If the dysenteric stools recur, repeat the treatment again and again, until the disease is cured, or the patient become too weak to bear the treatment. When the bloody stools have ceased, but mucus or matter is thrown off, he administers injections of a teaspoonful of laudanum, and not more than a half-teaspoonful [?] of

* It may be proper to say here, that in the course of last year I administered a strong solution of nitrate of silver, grs. x. to the ounce, to a little boy who had been troubled with an obstinate diarrhœa. It produced the most intense agony for some fifteen or twenty minutes. The little fellow was covered with a profuse perspiration, and constantly uttering the most piercing cries. Upon the subsidence of those distressing symptoms, his diarrhœa was found to be permanently cured. This is the only instance in which I have observed any unpleasant effects from its use.—W. L. S.

† Nash. Jour. Med. and Surg., Oct. 1853, p. 203.

starch mucilage; or, what is sometimes better, an injection of sugar of lead, gr. iii.; laudanum, 30 to 60 drops; in water, ℥ ii., after each dysenteric discharge.

At this stage of the disease, the bowels must be moved from above at least once a day, for which nothing is better than salts. When there is fever, he gives a teaspoonful of the following mixture every three hours, viz.

℞. Spts. nitr. dulc. ℥ ii.
Paregoric, ʒ ii.

It acts as a sedative diuretic, and diaphoretic. He keeps his patients quiet in bed, their diet being rice or gruel. In addition, he uses other means; as applying warm flannel to the abdomen; rubbing the abdomen and spine with stimulating liniment; giving blue pill when the secretions seem to demand it, and quinine when there is chilliness occurring at certain hours of the day; tonics and stimulants when required; and turpentine in mucilage and sugar when the tongue is dry and parched, or glazed and shining.

Dr. Moore, of Cromwell, Ky.* 1. Bleeds, if the patient will bear it, in the sitting posture, to approaching syncope. 2. Relieves the bowels of any undue quantity of fæcal matter, by a brisk laxative. 3. Depends upon opium. This he gives for the relief of pain, and to check the discharges, and continues it through the disease as may be found necessary. His dose is a grain of sulph. morphia every one, two, or three hours; according to the urgency of the case. "Thus," says he, "we lay aside the cathartic treatment, which, for years past, has been so much employed in dysentery, and control the case as above with opium. In addition to which we resort to alterative doses of blue mass, calomel, with ipecacuanha and opium, oil of turpentine, copaiba, &c. We have seen much good to accrue from the proper administration of turpentine as an alterative in this affection. Opiate injections are to be employed from the commencement. To these may be added acetate of lead, nitrate of silver, sulph. zinc, or sulphate of copper, of which a small quantity should be injected into the bowels after each discharge. Emollient poultices should be kept over the bowels while there is pain or soreness. The diet must be light. If, however, the attack has been one of severity, such as to overcome, in a great degree, the powers of the system and cause a state of great prostration, or low debility, the patient must be

* Nash. Jour., Oct., 1853, p. 204.

supported by nutritious food, and wine or brandy, which, in sufficient quantities, will be found to act most beneficially. When the disease assumes the typhoid form, and there is great irritation, with a weak and frequent pulse, and the vital energies very deficient, the sustaining plan of treatment has won for itself the highest position, in my estimation. It should be brought to bear early in the disease, and with sufficient boldness to insure its invaluable effects."

Dr. Larue, of Frankfort, Ky. speaks only of such cases as were complicated with, or followed by, congestive chills, which, he says, caused nine-tenths of the deaths in his vicinity. To overcome this state of things, a judicious and timely administration of quinine frequently prevented the congestion, and then the disease was controllable. But there were many cases which could not be benefited by quinine, stimulation, friction, sinapisms, blisters, cupping, &c.; but seemed rather to be aggravated thereby. When this plan does not answer, he advises the affusion of cold water over the breast and abdomen, while the feet and hands are in hot water, as recommended by Dr. Barbour, of Pulaski, Tennessee.*

In the Nashville Journal, for August, 1853, Prof. Bowling gives his treatment of idiopathic dysentery; *i. e.* where dysenteric symptoms are not connected with other disease.

"Dysentery proper comes on in two ways.

"1. Insidiously, as the terminus of diarrhœa.

"2. Abruptly, with fever.

"In the *first* case there is but one remedy, and that is opium in large doses; opium alone. Every fraction of a grain of calomel does harm. Often 5 grains of opium in a single dose causes the disease to abort.

"In the *second* case, if the fever run high, bleed in the first paroxysm, or even in the second if the patient has not been seen before. If you conclude to bleed, set the patient up and bleed until there is an *increased frequency of pulse*, with a corresponding loss of force; or, until the patient *pales* or sickens. An hour after, give three of the following pills:

℞. Pil. Hydrarg.
Best aloes,
" scammony, āā gr. xxx.—M.
Make into a mass with water, and divide into 20 pills.

* See Bartlett's Treatise on Fevers, or Am. Jour. Med. Sci., July, 1841.

If the pills fail to operate in six hours, give two more, which may be repeated in six hours if necessary. When the pills have operated three times, give immediately a pill consisting of from 3 to 5 grains of solid opium. All this will happen before the next febrile paroxysm. Then, if tenderness exist along the course of the colon, scatter from 12 to 20 leeches over the arch and descending colon, and repeat the opium if the dysenteric stools have returned. When it becomes necessary, after this, to move the bowels, let it be done with small doses of calcined magnesia and Epsom salts, or with Seidlitz powders; and after an operation or two give a grain of opium. We have given the doses for a stout adult. This treatment, in our hands, completely disarms dysentery; and we have learned not to regard it, *in the beginning*, as a serious enemy."

Dr. Lipscomb, a member of the Committee, tried the saline treatment of his friend and neighbor, Dr. McNelley, but was not satisfied with it. He trusted more to mercurials, as purgatives and alteratives—not as sialagogues, in which capacity he never used them.

In the year 1852, as shown by the registration returns, no less than 1,923 persons died in Kentucky, of dysentery—nearly one-fifth of the deaths from all assigned causes. This, assuredly, was a mortality altogether unnecessary.

No doubt a large portion of this mortality was occasioned by inherent malignity in the epidemic, as it prevailed in certain districts; but very probably fully as large a proportion occurred from two other causes: 1. Very many persons think that physicians cannot cure dysentery; and, equally absurdly, think that *anyone else can.* Hence, many cases come into the hands of physicians at a time when they are past remedy—thus giving an apparently just ground for that opinion. 2. The want of faithfulness on the part of nurses, in carrying out the prescriptions of physicians. In all diseases, and especially in dysentery, it is important that the physician should have a distinct idea of what is to be done, and of the means by which it is to be done. But this avails little, if his prescriptions are negligently and imperfectly administered. In severe epidemics, physicians cannot spend as much time with individual cases as they should, without neglecting others equally dependent on their care and attention. From ignorance, carelessness, or indolence, the medicines are either not given at all, or in an irregular and slovenly manner, so as to lose

half, or more than half, of the effect which they ought to have produced.

Most physicians can tell melancholy stories of patients lost by negligence, or the maladministration of their remedies, of which they were never aware until the patient was dead; or of cases in which the patient seemed daily sinking into the grave, when they luckily became cognizant of the fact of such non-administration, or maladministration, of their remedies, and thus snatched them from the very jaws of death. Doubtless, many, very many patients have died from this cause, when the physician, seeing nothing to account for this downward course, ascribed it to some peculiarity in the disease, or in the constitution of the patient, which, with all his anxious solicitude, he was unable to discover; and thus forever remained ignorant of the true cause of death. Hence, a physician cannot be too watchful in attending to all the details in the nursing and management of his patients.

Autopsy.—Dr. Thomas made one *postmortem* examination, in which he found the appearances usually described. The whole of the large intestine was injected. This injection became more and more intense as it approached the anus. The mucous membrane was often removed, and slight ulcerations were numerous.

Dr. T. adds this reflection: "It could not have been the local inflammation which rendered this epidemic so fatal. There was some malignant influence exerted on the general system, which produced the great depression and the unusual fatality; showing, what some authors contend for, that as the country becomes older, the diseases assume a more adynamic character."

Table showing the Color, Age, and Sex of persons reported as treated for Dysentery, with the Mortality, and average days attendance.

Reported from	Color.	Cases attended.						Total.	Fatal cases.						Total.	Average days attendance.	Reported by
		Under 15 yrs		15 to 40 yrs.		Over 40 yrs.			Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.				
		M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.			
Hart Co. Ky.	W.	4	6	3	6	2	1	22	1	..	..	..	..	..	1	6½	Dr. Walton.
Fayetteville, Tenn.	W.	2	3	7	2	2	..	16	..	..	1	..	..	..	1		
	B.	2	3	1	..	1	1	8	..	1	..	..	..	..	1	8	Dr. McNelley.

Bilious Fever. *Time of prevalence.*—In the vicinity of Fayetteville, Tenn. bilious fever appeared occasionally throughout the year. In 1853, Dr. McNelley treated one or more cases in every month except January, but the great proportion appeared in July, August, September, and October.

Symptoms.—The disease usually prevails in the form of remittent fever, or that of intermittent. In remittent fever the disease usually commences with a decided chill, sometimes with a severe rigor. This cold stage, after lasting a longer or shorter time, is succeeded by febrile reaction; hot skin; frequent and full pulse; pain in the head, back, and limbs; tongue covered with a white or brown coating; urgent thirst; great restlessness; in many cases great irritability of stomach, so that medicines or drinks are ejected as soon as swallowed. The fever usually observes a quotidian or tertian type. At Monroe, Hart county, Ky. there was more nausea and vomiting than usual, and the tongue whiter. There was one symptom not remarked heretofore: in a large proportion of cases, the external gums of the lower front teeth had a whitish appearance, as if they had been scalded sufficiently to make the cuticle slip, under pressure.

Treatment.—Dr. McNelley rarely found venesection necessary; on the contrary, he thought it retarded convalescence. He usually commenced his treatment with an emetico-cathartic—of calomel, grs. 20; ipecac. grs. 6, mixed and divided into three portions, of which one was given every three hours. Emesis was encouraged by warm drinks. After six or eight hours, these powders were followed by a dose of castor-oil or some other purgative. He gave some of the so-called diaphoretics, but placed little reliance upon them. He found nauseants answer a good purpose, in reducing febrile action and bringing on perspiration.

As soon as the pain in the head was relieved, and the frequency and fullness of the pulse sufficiently diminished, he gave 5 grs. quinine every three hours, until 15 or 20 grs. had been taken. As there was usually a remission about 9 or 10 o'clock, A. M. daily, he preferred to begin with the quinine about midnight, so as to have the patient fully under its influence at the time of remission. By pursuing this course, the remission was frequently converted into a complete intermission. He lays great stress on procuring dark or green, consistent discharges from the bowels, by calomel or blue mass. He does not give quinine at the onset,

or rely on it as the principal remedy. He sees no reason to vary his mode of treatment. He is of opinion that the too free use of quinine gives rise to serious inconvenience, as divers persons have complained to him of roaring in the head and ringing in the ears, even years after they had been subjected to such treatment. He therefore makes it a rule to discontinue it as soon as any distress in the head, or blindness, is perceptible, and not resume it until those symptoms have disappeared.

For *intermitting fever* he commences by an emetico-cathartic of calomel and ipecac., followed by castor-oil or other purgative. He then gives five grains quinine every three hours, beginning twelve hours before the expected chill, using, at the same time, warm stimulating teas, as of sage, chamomile, or Virginia snakeroot. An hour before the time for the chill, he applies sinapisms to the wrists and ankles. When called to a case ten or twelve hours before a chill is expected, he attempts to arrest it by a combination of calomel and quinine; and is generally successful. In the course of the year he cured two cases—one of a year's, the other of two years' duration—with sulphate of cinchonia. Each had taken large quantities of quinine, with no further effect than arresting the paroxysms for a few days at a time; but the disease very promptly yielded to the sulphate of cinchonia. Some of his professional friends used it in a few cases, with similar success. Hence, he thinks it worthy of trial in obstinate cases.

Dr. Conn, of Pelham, Tenn. gives no treatment for remittent fever, merely remarking that he found it easily managed by the usual remedies; but he found *intermittent fever* particularly intractable. He commenced with an emetic of ipecacuanha, to evacuate the stomach thoroughly. If there was costiveness of the bowels, he followed this with a cathartic. He seldom found it necessary to use any mercurial preparation for this purpose, preferring "the extract of black root" [what is that?]. He then commenced six hours before the time of the expected chill, and gave a pill composed of quinine, two grains; piperine, one grain; and carbonate of iron, one grain, every hour. Some two hours before the chill was expected, he had the patient put on a feather-bed, and well wrapped in a sheet wet with cold water, with heated stones to his feet and back. Another feather-bed was then put over him, the head being well wrapped in a wet cloth, enough room being allowed for free breathing. In this condition

he remained until the time for the paroxysm had passed. During this process the patient is allowed as much cold water as he desires. For children, he pursued the same treatment, only reducing the quantity of medicine to suit the age.

In HART COUNTY, Ky. Dr. Walton gave quinine in such manner as to use twenty grains in the twenty-four hours, usually combined with ipecac., until an abatement of the symptoms. No regard was paid to the skin or pulse in its administration; though it usually produced gentle, but free diaphoresis.* Bleeding was practiced at the onset, when there was high febrile excitement, with full pulse and delirium. Calomel was given when mercurials seemed indicated. It had a very decidedly good effect in cases characterized by a saffron hue of the skin and conjunctivæ. Ipecac. was given sparingly, as it was not well borne before sweating commenced. Diuretics, of which niter was preferred, were occasionally used.

Table showing the Color, Age, and Sex of those reported as treated for Bilious Fever, with the mortality and average days attendance.

REPORTED FROM	Color.	CASES ATTENDED.						Total.	FATAL CASES						Total.	Average days attendance.	REPORTED BY
		Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.			Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.				
		M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.			
Remittent Fever.																	
Pelham, Tenn.	W.	1	..	2	..	..	..	5	..	..	..	..	..	..	..		
" "	B.	1	..	1	..	..	..		..	..	..	..	..	..	..	8	Dr. Conn.†
Fayetteville, Ten.	W.	6	9	5	2	2	2	31	..	..	..	..	..	..	..		
" "	B.	..	3	1	1	..	..		..	..	..	..	..	..	..	4⅔	Dr. McNelley.
Hart county, Ky.	W.	7	6	5	5	1	1	30	..	..	1	..	..	..	1		
" "	B.	3	..	2	..	..	..		..	..	..	..	..	..	..	4	Dr. Walton.
Falmouth, "	W.	..	..	2	1	..	..	3	..	..	..	..	..	..	..	7	Dr. Barbour.
Intermittent Fever.																	
Pelham, Tenn.	W.	25	10	40	29	8	5	155	..	..	..	..	..	..	..		
" "	B.	10	6	8	7	4	3		..	1	..	..	..	..	1		Dr. Conn.
Fayetteville, Ten.	W.	..	2	6	6	4	2	20	..	..	..	..	..	..	..	2½	
" "	B.	..	..	..	..	..	..		..	..	..	..	..	..	..		

* The scalded condition of the gums above mentioned, very speedily disappeared under the use of quinine.

† No treatment mentioned.

TYPHOID FEVER. *History.*—We will introduce the subject of typhoid fever, by a history of its first appearance at Fayetteville, Tenn. as given by Dr. McNelley:

"This disease first made its appearance as an epidemic, in December, 1852; and up to March, 1853, not less than forty cases had occurred in Fayetteville and its vicinity. Cases, however, continued to occur throughout the year. I know of a number of cases in families where dysentery was prevailing. In one family there were five cases, two of which afterwards died of dysentery. I attended in another family where the father had typhoid fever, and a child dysentery. As before stated, it was no uncommon thing to see these two diseases in the same family, at the same time. But no one in this country saw typhoid fever and remittent or intermittent fever in the same family, at the same time. I have never seen a typhoid fever change into a bilious fever, or *vice versa.* I have conversed with other physicians of this county, who say the same thing."

Time of prevalence.—At Fayetteville, one half of all the cases seen by Dr. McN. were in January and February, although the disease prevailed throughout the year.

Causes.—The causes are not satisfactorily ascertained. Dr. Walton, of Hart county, Ky. says all his cases occurred in ill-constructed and badly ventilated houses. Several cases were ascribed to cold.

Dr. Barbour, of Falmouth, Ky. informs us that of fifteen cases seen by him, three occurred in one family which had moved to Illinois, and returned towards the early part of winter. While traveling, they had slept most of the nights in their wagon; and upon arriving in the neighborhood of their destination, they were obliged to occupy a shanty, which had been erected by persons at work upon the railroad. On the other hand, he says that among the Irish laborers on the railroad, who occupy these miserable hovels, he has never seen a well-marked case of this fever.

Dr. McNelley, unable to fix upon the cause of the disease, is well satisfied that it does not arise from malaria, because he has never seen it occur simultaneously with intermittent or remittent fever; and never saw intermittent fever occur after typhoid fever. On the other hand, Dr. Barbour says chills and fever are much less apt to follow typhoid than bilious fever—thereby leaving the legitimate inference that chills do sometimes follow typhoid fever.

Symptoms.—Having, in a preceding report, given a detail of

symptoms as observed at different points in Kentucky, I now present them as described by Dr. McNelley, of Tennessee, only adding a few which were observed at other points.

Usually, for several days, there was a sense of general uneasiness, which could be referred to no particular cause. To this succeeded a chill, more or less distinct, followed by fever. The remissions in the fever, for the most part, were so slight as to be imperceptible. The heat of the surface was greater than natural, but not generally so great as in bilious fever: yet in some cases it was intense. The pulse was always accelerated, varying from 90 to 140; frequently a little corded, at other times soft. The tongue at first was covered with a short, white fur, or mucus, which gradually assumed a dark, or brown color; and, in some cases, became almost black. The tip and edges soon became red, if not so from the first. As the disease progressed, the tongue gradually cleaned off, became dry, smooth, and excessively red, and would sometimes crack and bleed. From the first, in most cases, there was a fixed pain in the head, or ringing or roaring in the ears; sometimes both. There was also pain in the legs, and sometimes in the back. In about one-fourth of the cases there was low muttering delirium, night and day. When the patient was in this condition, his attention might be aroused by speaking to him, and he would return answers to questions; but he would soon relapse into his former state. The patient imagined himself from home; talked about returning thither, and of things long passed, or to persons not present. There was some cough, frequently from the beginning. The breathing was accelerated.

He had never seen the rose-colored eruption more than two or three times, though he had looked for it in all his white cases. He saw sudamina a few times. One cheek was usually flushed, occasionally both. The skin was generally dry, but sometimes moist about the forehead and neck. He did not observe any peculiar odor about the patient. The expression of the countenance was dull and vacant; sometimes there was drowsiness; sometimes watchfulness. In some cases there was nausea and vomiting, even excessive. There was a fixed pain in the right iliac region, and about the hypogastrium. Pressure here generally caused a gurgling noise in the bowels. Diarrhœa was present in several of the severer cases; not in the milder.

Dr. Walton saw a case in which the skin was generally below

the natural temperature. When the general surface was warm, the extremities were usually cool. In many cases the patient complained of nothing, unless his attention was called to some particular point, when he would seem somewhat surprised to find that he had some uneasiness there. On the 7th or 8th day, a rash, so slight as scarcely to arrest attention, was found in most cases. Copious hæmorrhage from the bowels occurred in five cases, commonly about the 6th or 7th day, but as early as the 3d, and as late as the 19th.

Dr. Barbour found rose spots about the second week, in many cases, but not in all; and sudamina at a later period. He frequently met with hæmorrhage from the bowels and from the nose.

Dr. Hart, of Prestonsburg, Ky. found, as one of the most prominent and distressing symptoms, what seemed to be an œdematous swelling of the mucous lining of the larynx and trachea, which in some instances extended to the bronchiæ, producing a very distressing sensation of suffocation,—a feeling as if phlegm had accumulated in the air-passages, giving rise to a continual and exhausting screatus. He cannot speak positively as to the rose spots, and says nothing of hæmorrhage.

Treatment.—Dr. Walton treated his patients on the expectant plan, aiming to meet indications as they arose. He *bled* five of his patients, for the reduction of febrile action, not as a means of cutting short the disease. The blood in every case was as much buffed, upon cooling, as it is in pneumonia or other inflammatory affections. The patients generally seemed more comfortable, and had less delirium, after bleeding. The pulse was reduced in force, but not in frequency. Both cases that died were bled early in the attack. One, a robust negro, aged 23 years, with active delirium (a fatal symptom) from the commencement, could scarcely be held in bed, and died on the 7th day, from exhausting hæmorrhage from the bowels. The family supposed he had discharged a gallon at one time. The other died on the 30th day, also from hæmorrhage from the bowels, which had occurred at three different times, on the 7th, the 9th, and the 19th, all copious. *Opium* was given freely, to restrain excessive looseness in the bowels, and to quiet the delirium. Nothing seemed so efficacious in allaying delirium and inducing sleep. It was judged proper that the bowels should act every day or two. If three days passed without a motion, he gave rhubarb and calcined magnesia, or ol.

ricini and spirits of turpentine; usually the latter. *Mercurials*, he thought, produced prejudicial effects. He gave *quinine* in every case but one,—in some cases for a day or two, and in some for three or four days. It sometimes produced free perspiration; but never failed to increase the frequency of the pulse. Sometimes, in the course of twenty-four hours, it increased the frequency twenty or thirty beats per minute. Although some of the cases seemed to require it, it was invariably injurious. The case which was treated without any quinine, recovered sooner and more rapidly than any other; although the patient was a female advanced to the sixth month of pregnancy. His friend, Dr. Adair, agreed with him in believing that quinine was anything but beneficial. He thinks that all cases reported as typhoid fever in which quinine was serviceable, were cases of remittent fever.

When the skin was hot and dry, *cold water and vinegar*, applied to the head and the chest, greatly conduced to the comfort of the patient. Cold water, as a drink, was allowed *ad libitum*, and even given at regular intervals, whether called for or not. Spirits of Mindererus, in table-spoonful doses, was administered every four to six hours. It appeared to be beneficial in inducing gentle perspiration, and especially in allaying restlessness. He gave diuretics in every case; spts. nitr., æther, uva ursi, and buchu were preferred. *Brandy* was given, in every case, when the patient became much exhausted,—in some after three or four days,—with the happiest effects. When the discharges were very offensive, pulverized charcoal was given. For hæmorrhage, tannic acid and opium, in full doses, were used. He thinks that tannic acid is beneficial, independent of its astringency.

The diet for a few days was light; but after the lapse of a week, nutritious diet was allowed, and the patient was fed at regular intervals, whether he called for it or not.

Dr. Hart relied upon aperients, diuretics, diaphoretics, sedatives, and stimulants. If there was much nausea, an emetic of ipecacuanha was given, followed, after a few hours, by a mixture of *Ol. ricini*, ℥ i, and *spt. Terebinth*, ʒ i. If too great activity of the bowels was feared, he added to this dose a little laudanum or paregoric. His next effort was to restore a healthy action in the skin and kidneys. If the febrile symptoms ran high, the citrate or the acetate of ammonia, or the citrate of potash, with nitric æther, was used; but if the skin was cool, or but moderately warm, the compound powder of ipecac. was preferred. These

means were continued, from day to day, at suitable intervals. If the bowels were disposed to act too freely, some preparation of opium, combined with camphor, was given; or some of the astringents, as acetate of lead, kino, or tannic acid. At the same time, sinapisms, or warm stupes of turpentine, were applied to the surface of the abdomen. For the distressing thoracic complications, these local applications were quite efficacious. In one instance the bronchitis resisted them, but yielded readily to the action of a blister.

If, under the above treatment, a healthy action of the skin and kidneys was established, convalescence would ensue in from twelve to twenty days from the commencement of the attack; otherwise, a degree of exhaustion requiring stimulation would set in. Indeed, from the beginning, he constantly kept in view the intractable nature of the disease; his aim being to brace the system against the exhausting effects of the disease, and to give it time to run its course. In the advanced stages he trusted to stimulants and tonics; guarding, at the same time, against local inflammations. In one very obstinate case he gave calomel, and, at the approach of ptyalism, the symptoms gave way; but inflammation and ulceration of the mouth ensued, and came near proving fatal.

Dr. Barbour, after unloading the bowels, kept them open by the mildest aperients. He thought an occasional dose of calomel and soda beneficial. But repeated doses of calomel, or salivation, in the early stage, he thought injurious. Cold water, ice, and fresh air, are of the utmost importance. In severe headache, he found cold applications invariably successful. For pain, tenderness, or a tympanitic state, of the bowels, warm bran poultices, sprinkled with mustard, were of great value. The turpentine emulsion was exceedingly valuable in diarrhœa and in hæmorrhage, and also when the tongue had shed its coat and was resuming it again with increased redness. Recently, he has been using the tincture of *veratrum viride*, in doses of 6 to 8 drops every four hours, until it produces vomiting, and continued, in smaller doses, to keep up the impression. He considers this as the only article that will control the pulse in typhoid fever.

Dr. McNelley says, "In the commencement of a case, it is many times difficult to say with certainty with what kind of fever we have to deal; and as that treatment which is advisable in bil-

ious fever would be very prejudicial in typhoid, we should proceed with caution." He therefore begins with the following:

℞. Blue Mass, gr. xlviii.
Ipecac. gr. vi.
Make into 12 pills, one of which is to be given every four hours.

At the same time, he gives the solution of citrate of potash, made as follows:

℞. Citric acid, gr. lxx.
Carb. potass. ʒ j.
Aqua, ℥ iv.

Dissolve, and let it effervesce. Give one table-spoonful every hour or two, according to the degree of fever. It will frequently produce diaphoresis.

If the discharges from the blue pill become too frequent, he gives a tea-spoonful of a mixture of equal parts of tinct. catechu and paregoric, as often as may be necessary for the purpose of properly restraining the evacuations. This course he pursues from day to day, with scarcely any other remedy, and with the most happy effects. Should diarrhœa set in—and this need not be confounded with the action of the blue pill—he discontinues the pills, and gives fifteen or twenty grains subnit. bismuth every six or eight hours, according to the urgency of the diarrhœa. This has controlled diarrhœa admirably, having never disappointed him but once. He continued the citrate of potash while giving the bismuth. He quieted restlessness, and procured sleep at night by from half a grain to a grain of sulph. morphiæ, dissolved in a gill of warm water and given as an enema. He has never tried the "abortive" method with quinine, but has given this medicine in doses of from 3 to 5 grains every few hours, at almost all stages of the disease, and as long as the head would bear it. He has not perceived the least benefit from it.

In a communication to one of the Committee, Dr. B. F. Stevenson writes as follows: "In connection with some hospital practice which I have witnessed here [Cincinnati], I was forcibly struck with a quotation in your Report, from Prof. Grant, of Memphis, viz. 'Our patients in typhoid fever, we would say, die from a deficiency of the vitalizing principle in the blood, which imparts to the nervous system the power requisite to sustain and keep in action the organic functions.' This deficiency, I believe, is now conceded to be a defibrinated condition of that fluid. Take this as granted, the effort would be to restore it to a healthy state. And now comes the important practical point: The blood

is charged with carbon, and deficient in fibrin. How are you to change the crasis of that fluid? By the introduction into the system of oxygen, you effect the removal of the carbon, and an increased development of fibrin. And for this purpose nothing is so potent as the chlorine preparations, as they have more oxygen in their composition than any other known combinations.

"Reasoning thus, Prof. Lawson determined to treat some eight cases in accordance with this theory. I witnessed the entire course. With but a single exception, they were confined exclusively to chlorine water, in doses varying from two to six drams, once every four to six hours.

"The cases were, all of them, well marked, with abundant crop of rose-spots, sudamina, and all the characteristics of the disease. In every instance, the medicine exerted a controlling influence over the morbid action, and set up secretion within three days. The skin, the liver, kidneys, and mucous membranes came under the influence of the drug within the time indicated; and all the cases were discharged cured in about three weeks' time. It was to me the most satisfactory treatment of that disease I had ever witnessed.

"Of course, a drug of such power must be watched. I, however, saw no deleterious effects resulting from it. In the exceptional case alluded to above, it reduced the frequency of the pulse, in three days, from 130 in the minute to 60. It exerted this influence in all the cases, though not to a degree so marked, and yet without depressing the vital powers."

Without at all indorsing either the facts or the reasoning upon which this practice was instituted, it may be remarked that this remedy, as far as the eight cases go, seems to have acted in a manner altogether satisfactory. It has heretofore been highly praised in low grades of disease, as typhus, scarlatina maligna, &c. In some cases it certainly appears to act very finely; while in others it produces no appreciable effects. This, most probably, has been owing to a want of discrimination in its use, or a proper activity in the medicine. Great prostration, fœtid secretions, and dark, dry tongue, are given as indications for its use. In Watson's "Practice of Medicine," under the head of scarlatina maligna, there is a recipe for its extemporaneous preparation. It should be kept excluded from light.

Respecting the value of quinia as a remedy in typhoid fever,

a very marked difference of opinion will be observed between those who favored us with their views for the Reports for 1852 and 1853, and those contained in this. While Evans, Chambers, and Sutton, of Ky. and Lenoir, of Tenn. recommended its use in the Report made in 1852, and Dille and Swain, of Ky. recommend it in that of 1853, Hawkins does not mention it, and Grant unequivocally condemns it. All who have remarked upon its use in the present Report, decidedly condemn it. Drs. Bradford and Hart do not mention it. It is true that Hart speaks of tonics being serviceable in the latter stages of the disease; and, by implication, may be understood as in some degree favorable to the use of quinia in such states.

But Drs. McNelley and Grant, of Tenn. and Walton, of Ky. have nothing to say in its favor. Such, perhaps, is a fair representation of the discordant views of the profession, in this section of country, as to the use of quinine. In a neighboring village in Scott county, of two gentlemen, partners in practice, one looks upon quinine as little better than poison in typhoid fever; while the other esteems it as emphatically *the* remedy. Where there is such discrepancy of opinion among so many gentlemen of observation and experience, it must be admitted that there is much difficulty in determining the cases in which quinia is beneficial. For it must be allowed that it is *sometimes* serviceable, or else there is great error in diagnosis. In consideration of the inherent difficulty in arriving at a correct conclusion, we may be allowed to say a few words as to the reasons for its use, and the objections to it. Those who use it do so on different considerations; mainly as an anti-periodic, and as a remedy for irritability, or, as it is frequently called, *nervousness*. That the cold stage, or stage of depression, is as well marked in typhoid fever as in intermittent or remittent fever, is by no means pretended; nay, that it is usually more or less apt to escape observation is fully admitted. But that such cases do occur, is certainly true. Take, for example, the following note at p. 104 of a Treatise on Typhoid Fever, by W. L. Sutton, M. D. of Georgetown, Ky. "I am inclined to think that there is frequently a periodical depression in this disease, which escapes observation. *Ex. g.*—While sponging a patient who complained of warmth, and whose forehead felt warm to my hand, I observed a very perceptible *lividity of the lips and of the alæ nasi;* this lividity, indeed, was *perceptible* in the countenance, but would perhaps have escaped observation had it not

been for the nose and lips. The toes were very slightly cool. This was all the evidence of depression. Acting upon this hint, I gave ten grains of quinine a few hours afterwards, and repeated it twice a day, for several days, with apparently the most unequivocally good effects."

These effects were a free, warm perspiration, which lasted about thirty-six hours, an increase of volume in the pulse, and, apparently, the commencement of convalescence.

The next question is, was this a case of typhoid fever, or was it an obscure case of bilious fever? In answer, I have to say, that the patient was my own son, his case both tedious and bad, in my own house, and of course I was with him myself almost uninterruptedly. I was aided by my professional friends, who, I take the liberty of saying, are worthy to rank with any in the land; and none of us doubted its being a genuine case of typhoid fever. To the usual symptoms of the disease were added the rose spots, which have rarely been observed here, and free hæmorrhage from the bowels.

For restlessness or nervousness, many physicians in this vicinity rely on quinia, either alone or combined with morphia, and think themselves abundantly justified in that reliance.

Again, quinia is sometimes given as an antidote to diarrhœa. I will quote two more passages from the same work on typhoid fever, p. 104. "Dr. Desha places much reliance upon quinine combined with calomel or blue mass, as an antidote for profuse diarrhœa. I have used calomel, grs. xii.; quinine, grs. v., or a smaller dose, in several cases, with much apparent advantage. I have used it, too, where no advantage resulted from it." Again, p. 105. "I have seen, since writing this essay, some cases in which quinine appeared to have a most happy effect: *e. g.*, Mrs. G. in February, 1849, had taken a small dose of calomel, and some smaller doses of blue mass, ipecac. and opium, without any apparent benefit. Having a profuse, watery diarrhœa, frequent small pulse, tongue thickly coated and dry, extreme muscular weakness, and incoherence (to which might have been added an inability to speak, and that her friends—her husband, a physician, among the rest—felt that her end was near), she took quinine, grs. v., and again in the evening. After that, grs. x. every morning, for several days. After that the dose was gradually diminished. No other medicine. Under this course the diarrhœa diminished, and eventually constipation was established; so that

she had no stool for six days, when the bowels were moved by an injection. The tongue improved gradually, the pulse came down, her speech returned, her strength increased, and she had a regular though tedious convalescence."

If the influence of quinia in typhoid fever is only evil, and that continually, how are we to account for the *escape* in these two cases?

My friend, Dr. Gano, without attempting to explain the *rationale* of the action of quinia, gives it to equalize the circulation, and remove nervous irritation; and says that if he has ever seen any remedy produce an unequivocally good effect, in this fever, it is quinia. Yet he is satisfied that he has seen it do harm. This was when it had been given in large doses. He accounts for it by supposing that if the medicine, by being given at an improper time or from any other cause, fail to make the desired impression on the disease, its action is spent upon the powers of life, and does injury. For example, if the medicine be given to relieve nervous irritability, the pulse being say 120 and weak, and it fails to bring down the pulse to 110, or 100, the powers of life are so much injured that the pulse rises to 130, or 135.

For this reason, in bad cases, he never prescribed large doses, *i. e.*, ten grains, more or less, lest the disease should be placed beyond his control.

The objection to its use urged by Dr. Grant, is, that it only lessened the frequency of the pulse in *some* cases; while in *all* it increased the restlessness, sleeplessness, tinnitus aurium, and the deafness symptomatic of the disease.

Here is inserted the answer at length of Dr. G. to an inquiry as to his precise meaning in using the expression "to guard carefully the *period* of *crisis*" as found in the Report for last year: "My reply is, that towards the close of typhoid fever cases, as I have observed them in malarious regions of country, say from the fifteenth to the twenty-first days of the attack, as a general rule, there is a complete remission in the febrile symptoms between the hours of 12 o'clock at night and 6 in the morning. It is during these remissions that the system is apt, if not guarded and supported by *stimulants*, to become so far collapsed as often never again to react. This stage it is that I have called, for the want of a better name, the *crisis;* as it is, in my mind, the turning point where death or convalescence is to decide the sufferer's fate. Depending, as I conceive these remissions or *crises* to depend, upon *exhausted*

innervation, and not upon the element of *periodicity* belonging to and intimately associated with the purely *paroxysmal fevers*, I prefer the term '*crisis*' to '*remission*.' According to my observation, the patient is better supported, during its continuance, by carb. ammoniæ, with pure *Port* or *Madeira wine*, than by quinia or any of the preparations of cinchona. When the reaction sets in, the stimulants are discontinued during its continuance; but the nurses are strictly charged to be on the watch for its approach, on each succeeding night, when the stimulants, with such other supporting measures as different cases may require, are again brought into requisition, until the case is brought to a safe issue, and convalescence is firmly established."

This extract teaches two important facts: 1. This stage occurs in many cases; and, 2. It is very easily overlooked. The latter is noted by Dr. Hawkins, in the Report of last year, thus: "This stage was not perceived by the patient, but the nurse would be aware of it by feeling the toes, and especially the pulse, which many times could scarcely be perceived." This stage must be familiar to all physicians who have closely watched the disease; and, as Dr. Grant intimates, it is one of great danger. To support a patient *during* this stage, ammonia, wine, and brandy are the remedies. The preparations of cinchonia are too slow; but would not a fair dose of quinia, administered some six or eight hours before the time, *prevent it?* The frequency of this stage, and its liability to be overlooked, ought forcibly to impress upon both physicians and nurses the importance of watchfulness.

Dr. Walton objects to quinia, that it *increases* the frequency of the pulse, sometimes as much as twenty or thirty beats to the minute, in twenty-four hours.

It is proper to add that two cases, in pretty quick succession, seemed to be injured by the use of quinia in the hands of the writer. In each, the family thought that there was a slight but appreciable remission in the latter part of the night. To meet this, quinia was given. The case, previously bad, had nevertheless presented some slight amendment for a day or two; but from this time it grew worse and worse, till death. Whether these were cases such as occasionally occur, in which the patient is *apparently* better for a short time, and then becomes worse and dies without any assignable cause, or whether the quinia really injured them, it is very difficult to determine.

The same may be said of the origin of the great discrepancy

of opinion among gentlemen of undoubted ability, in regard to the utility of quinia.

Autopsy.—Dr. Walton has given two autopsies.

Bill, a colored man, aged twenty-three years, died July 28th, after an illness of seven days, from exhausting hæmorrhage from the bowels. Autopsy twenty-four hours after death. Found the gland of Peyer ulcerated extensively—some of the ulcers the size of a shilling. The solitary glands were extensively ulcerated also, for some fifteen or eighteen inches up the small intestine. They were most abundant at a short distance above the ileo-cæcal valve. Some of them presented a whitish, indolent appearance. There was considerable enlargement of the mesenteric glands in the immediate neighborhood of the ulcers, they being from the size of a pea to that of an almond. There was considerable ecchymosis around the ulcers. The ulcers extended through the mucous and muscular coats of the bowels, destroying some of the minute branches of the mesenteric artery, from which the hæmorrhage proceeded. Spleen enormously enlarged. Bile cyst very much distended with healthy bile. Other abdominal organs normal.

G. A., a youth aged seventeen years, died November 7th, of typhoid fever, after a tedious illness of thirty days. Autopsy on the 8th. Peyer's, and the solitary glands extensively ulcerated. Some of the ulcers as large as a quarter-dollar. Considerable engorgement of blood around the ulcers, which were in great abundance for eighteen inches up the bowel from the ileo-cæcal valve. The glands which were not ulcerated were enlarged; and the bowel was almost a solid mass of disease throughout the space mentioned. Gall-cyst very much distended.

This patient had been the subject of repeated hæmorrhages from the bowels during his illness; each one leaving him almost perfectly prostrate.

Table showing the Color, Age, and Sex of persons reported as affected with Typhoid fever, the Mortality, and Average Time of Attendance.

REPORTED FROM	Color.	CASES ATTENDED.						Total.	FATAL CASES.						Total.	Average days attendance.	REPORTED BY
		Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.			Under 15 yrs.		15 to 40 yrs.		Over 40 yrs.				
		M.	F.	M.	F.	M.	F.		M.	F.	M.	F.	M.	F.			
Fayetteville, Ten.	W.	1	3	2	4	..	..	10	..	..	1	..	..	..	1		
" "	B.	..	3	..	..	..	..	3	..	..	..	..	..	..	..	19	Dr. McNelley
Hart Co., Ky.	W.	..	1	1	1	2	..	5	..	..	1	..	..	..	1		
" "	B.	..	..	1	..	..	..	1	..	..	1	..	..	..	1	17½	Dr. Walton.
Prestonsburg, Ky.	W.	..	..	..	..	..	..	10*	..	..	2	1	..	..	3	26	Dr. Hart.
Falmouth, Ky.	W.	1	2	6	2	3	1	15†	..	..	..	..	1‡	..	..	26	Dr. Barbour.

All which is respectfully submitted.

W. L. SUTTON,
E. B. HASKINS,
T. LIPSCOMB,
F. A. RAMSEY.

* These cases are not definitely classed; but three were under fifteen years, five from fifteen to forty, and two over forty. Five were males, and five females.

† Three consultation cases.

‡ Consultation case.

ON

ERYSIPELAS.

ON

ERYSIPELAS.

BY R. S. HOLMES, M. D.

OF ST. LOUIS, MO.

We suppose all fevers have greater or less congestion; but all fevers are not congestive fevers. That term is applied to a characteristic form of symptoms. In the same spirit, we suppose all inflammatory affections of fibro-cellular tissues are in a greater or less degree erysipelatous; but all such affections are not erysipelas. That term is applied to a peculiar inflammation, of dermoid, areolar, mucous, or fibrous, even of serous tissues proper, which has characteristic symptoms setting it apart from other diseases common to these tissues. How the inflammation of erysipelas differs from that of carbuncle, as regards its pathology, our knowledge does not exactly inform us. We see the prominent points of difference: one is more local, less disposed to spread, has more pain and pus formation, is not disposed to center itself elsewhere; but why carbuncle should set its seal there instead of erysipelas, we do not know.

The pathology of this disease is unfortunately very obscure, the most diverse opinions having been formed regarding it. The cause of it, when constitutional, is alike uncertain; its range, over different latitudes and countries and climates, is extensive; its therapeutics, though varying much, have been tolerably successful, chiefly, we suppose, from one peculiarity with regard to its pathology, which we will presently mention; its range over different parts of the human body, and its assimilated connection

with diseases bearing a different name, have made the proper understanding of the disease difficult.

It is to be regretted that so many apparently different inflammations have been classed under this name; different with regard to place, gravity, duration, therapeutics, and pathology; yet, until we have made farther advances in the pathology of the exanthemata, we fear we will have to plod on in our old routine of treatment and thought with regard to this disease. Its pathology seems to have been most unaccountably neglected by those who have written on the disease; and anyone who considers it with a view to a precise pathology, will readily acknowledge the difficulties surrounding the subject. It may be questioned if there is any single disease of the skin or mucous membrane that does not, at some period of its course, take on erysipelatous signs or symptoms.

Pathology of Erysipelas.—This is the great difficulty in the consideration of the disease. It is a traumatic and idiopathic disease, attacking chiefly some one or more of the tissues entering into the texture of skin, and mucous and serous membranes. The blood becomes more fibrinous, and deficient in red globules, there is a very generally impaired secretory action over the whole body; fever, of a greater or less grade, is common, generally intermitting; there is considerable derangement of the action of the liver;—and this comprises most of our definite knowledge concerning its pathology. Unfortunately, we think, pathologists have endeavored to find some one tissue on which the inflammation is expended; while we are convinced that the lesion of several tissues is common, even in the milder forms of the disease; while in the more severe phlegmonous varieties, the muscular tissue itself is implicated, though this is probably the one of the soft tissues that suffers least frequently. The areolar tissue (the cellular tissue of the old physiological writers) is perhaps the tissue which has most frequently been supposed that on which the erysipelatous inflammation preyed; but it has been very generally supposed, of late, that it is only materially implicated when the inflammation is of a deep and imperfectly suppurating character. That it cannot be the only tissue, is evident from many peculiarities.

The primary apparent effect of the poison is generally upon the mucous membrane; but it also is often first seen on the skin proper, and undoubtedly on that part of it external to the deep layers of areolar tissue; the vessels of these parts, it is true, be-

come turgid and sluggish and engorged; but that part of cell-layer just adjacent to, and lying upon, the rete mucosum, seems to be the one chiefly impressed. We are here taking the supposition as true, that erysipelas is a blood-poison, a blood-disease,—something is in the blood, requisite to be thrown off, nature doing it, by mucous, serous, by glandular, or by skin structure. Previous to this apparent inflammatory action, however, the system in general has given signs of suffering; there is a chill, followed by fever; or fever sets in from the commencement; pains in the limbs, or body; uneasiness, derangement of biliary, stomach, or intestinal secretion; flushed face; pains in the head; and very often oppression about the throat or salivary glands: in every idiopathic or severe traumatic case of erysipelas, the constitutional precede the local symptoms. There are, doubtless, cases of the disease where no external sign is given of its presence, where the tendency occasionally manifested by it to seize on serous, instead of mucous or cuticular tissue, is in existence from the onset. We hold that the peritoneum, the pleura, or the arachnoid may take on the erysipelatous inflammation as certainly as the lining membrane of the fauces; if the disease be constitutional, it, like many others, shows preferences for particular parts, but is not confined to those parts; it can no more be called a "dermal disease" than it can be called a peritoneal disease; in its signs it is a peculiar form of inflammation, with characters as strong as an inflammation where lymph is thrown out for adhesions, or pus for a covering or protection. Its pathological exudation is like that of many others, merely a deficiency in its physiological exudation; but in proportion to the potency of the cause, so will be the power of the exudation to assume the pus formation, or the fibrinous or the simple agglutinative lymph; the pus may show a greater tendency to form on mucous than on serous textures, but that does not exclude the serous; and in proportion to the gravity of the cause will be the result. The exudation to which an erysipelatous cause gives rise is of a serous character. This exudation of erysipelas is greater in amount with regard to its serum, and smaller in amount in the nuclei of pus cells, or of fibrin. This may be readily supposed to be its character; for it shows no tendency to the reparative process, is thrown forth in such an amount, at times, as to burrow through the surrounding tissues, and even, as in the case of "black tongue," either by its own tendency to de-

cay, or by the severance of continuity of parts, to assume the gangrenous character. We see no reason why erysipelas may not cause death without any structural lesion, as the poison of malaria often does, or the bite of a serpent. We cannot enter into the views of those who think the peritoneal distinct from the erysipelatous inflammation, because it is so deadly in its character, and because there is occasionally so slight an amount of lesion. There are but few cases of the disease where death can be ascribed to the second inflammatory process.

There is a strict anatomical resemblance between skin, mucous, and serous tissues. They are all composed of the layers of epithelium, basement, and areolar membrane. There is such a tendency, it is true, given in one case to this epithelial cell that it shall shrivel and become dry and dead; in another, that it shall secrete mucus; and in the third, that it shall secrete, or exude if you wish, serum. These are physiological acts, but their pathology has points of similitude too. A blister will make the skin throw forth serum; or cholera will cause the like result in mucous membranes: in both cases a substance that is foreign to the natural secretion of the textures is secreted (or *exuded*, according to the fashionable term of the day); and we think it is singular, that, in a pathologic condition of serous membrane, they should be denied the power of secreting an abnormal product (in their effort to rid the system of it), which product accompanies habitually their natural secretion, serum. It is absurd to look to the peritoneum in puerperal peritonitis for the cause of death; we might as well attempt to look at the wound on the finger in the bite of the rattlesnake: the cause is in the blood; the peritoneal, the buccal, or the skin inflammation is the mere sign. Yet this taking up of the poison by the vessels of any particular part, does not imply that they should go further than assume a hyperœmic condition for the time being; in one constitution it may probably stop there, in another exude pus in another, lymph; in a third, serum; in a fourth, take on an ulcerative process: one man may have a wound on the head, and it will quickly run into the erysipelatous inflammation; another, and it will as quickly assume an inflammation tending to resolution, of which the lymphatic or suppurative process may be taken as the type. These separate results are in very true accordance with the state of the constitution at the time. As is the constitution, either originally or by acquired means, so will be the inflammation; and we derive from this one point in our belief in the

pathology of erysipelas; namely, that it is, constitutionally, and generally idiopathically, an asthenic disease,—that this is its final signification, though the present signs and symptoms may seem adverse to this idea. The exudation of a healthy kind may be looked upon as an exaggerated physiologic act, denoting the proper state of system at the time for the cure; that of imperfect serum or pus, a purely diseased state of secreting vessels of the part; which secretion itself acts as an irritant or poison to the part, or neighboring parts, or to the system at large, betokening an improper state of the system as regards its curative powers. Peritoneal inflammation, arising from child-birth, we hold, is not strictly a proper term; it is an inflammation of surrounding parts,—of uterus, ligaments, neighboring intestine; all these are frequently partially glued together, or bathed in the same sero-purulent exudation, engorged with blood, or partially so in patches, and thickened and improperly lubricated. This is erysipelas arising from a neighboring wound, as is the erysipelas of a leg after amputation; and if such an inflammation comes in a limb where the comparatively uninflammatory skin is the tissue attacked, from an irritant close at hand, we surely are not presuming too much to say that so delicate a tissue as the peritoneum, and one so readily taking on inflammation, will suffer likewise when the irritant is so close at hand as is the uterus. The attempt to make erysipelas an inflammation of one single tissue is very generally abandoned; yet it has a selecting power, and that selection falls on tissues analogous to the peritoneum, such as skin, areolar, and mucous tissue. This is in the idiopathic; but in the traumatic, its onset is at or about the producing cause, as in the circumference of a limb in amputation, or in the peritoneum after child-birth: hence we suppose puerperal peritonitis is traumatic erysipelas; but there is also an idiopathic peritoneal erysipelas, attacking males as well as females, and arising from causes traced to contagion, punctures from dissections, epidemic influence, etc.

Serous membranes are not the first choice in the erysipelatous inflammation. The mucous membrane of the fauces, I suppose, is affected much more frequently than any other part of the system. After this, the skin of the face; but to deny that the great serous extensions may be implicated, by inflammation primarily, or secondarily by metastasis, in either traumatic or idiopathic erysipelas, is to deny some of the best medical observation on record. The cases are most numerous of the metastasis to

these membranes, and of the first inflammation falling on them; of the infant suffering from erysipelas when the mother suffers from puerperal peritonitis; of puerperal peritonitis being common when erysipelas is epidemic. For a résumé of the points of analogy, and for a list of authorities believing in the identity of these diseases, see Nunnely's remarks on puerperal fever, in his Treatise on Erysipelas.

If erysipelas, however, gives as one of its chief signs a peculiar and characteristic inflammation, betokened by heat, redness, swelling, pain, and exudation, without giving the circumscribed eruption of small-pox or of carbuncle, but an inflammation and exudation, such as all analogy warrants us in saying may take place in shut as well as open cavities,—we have authority for inferring from this that it may be common to serous sacs. If the skin were stripped from below the knee, leaving other parts sound to a point, below this, where amputation had been performed, we suppose there are very few surgeons who would say, Erysipelas cannot come on, for there is no skin or mucous tissue, but only the areolar tissue (strictly allied to the serous), the muscular tissue, capillary vessels, etc.; they would rather say, This is the proper hot-bed of erysipelatous inflammation: there is loss of skin, which we deplore, and of whose renewal we are doubtful, and would have avoided the necessity if possible. But their *instincts* will convince them that of *all* inflammations the erysipelatous will most probably supervene. On the occurrence of the pus formation and inflammation, they are certain, if they know the individual is vigorous and in good health; but the surgeon is not so certain that the very deprivation of skin will not induce a state allied to or wholly of the erysipelatous kind, of which he stands in dread. These very *instincts*, if he has seen much of inflammations and of erysipelas, will tell him that erysipelas is not of the skin only, but of soft tissue at large; having favorite tissues, of which this skin is the chief, but not exclusive of peritoneum or pleura or arachnoid. To say that this inflammation is confined to the skin, is to limit a characteristic inflammation of soft tissue, to but one. It is the same as saying, pus can be secreted only by mucous, and serum by serous surfaces. Anyone will acknowledge that pus is more readily secreted by the mucous tissue; but that does not exclude the serous. In an erysipelatous inflammation of the skin around an amputated limb, it is not the skin alone that is inflamed, but

the whole of the raw surface, made up of several tissues; and we are not convinced that the osseous tissue itself may not occasionally take on this inflammation. We see no reason that the inflammation may not be established where blood can penetrate; for we think the *materies morbi* conveyed by the blood, and capable of causing fibrinous or albuminous structures under certain conditions to take on its own morbid character. The strikingly infectious character of hospital gangrene, and of this very disease, convinces us how searching, subtle, and morbid is this giving forth of fluid or solid particles from decomposing tissue, and of the blood being the vehicle of their conveyance to every corner in the system. The first symptoms are not in the wound, which is soon to suffer so severely, but in the head, with loss of sleep, appetite, and proper secretory power,—primarily a lesion of circulation.

Concerning what has been called the absorption of pus, and its subsequent deposition in a near or remote part, we hold that this doctrine is not favored by either physiology or pathology. The fact of pus being secreted in liver, in lung, in cervical, axillary, or lymphatic gland, after operations or wounds on the extremities, or as a sequence to an inflamed uterus, has been long known; but we find little to countenance the belief that pus is taken up as such, and deposited again in a distant part. The sudden disappearance of abscesses may be accounted for without supposing that the pus globule, in its integrity, has entered the circulation; but, even on the supposition that it has, it is by no means probable that all these globules would be caught up by some particular gland, leaving aside the very doubtful possibility of the size of the globule permitting it to pass through the capillaries. These deposits of pus, too, are found in distant parts; while the primary offending wound, or inflamed surface, has formed little or no pus. In fact, they are more frequently found under such circumstances, and particularly in inoculated wounds. As well as we can understand the meaning of terms, this is what is generally called the phlegmonous inflammation; but it is an inflammation of essentially the same kind as the erysipelatous, accompanied by the same symptoms, and cured by the same means. It is the absorption of imperfectly eliminated material, which material (in a state of decay, after it has been thrown forth by the part without accomplishing ulterior objects) has been absorbed or taken into the circulation,

causing in the blood, or part where it is set down for expulsion, its own state of decay,—or effort of the system to expel it. We suppose this is the whole idea of the secondary deposition of pus. A decomposing atom if you choose, a non-laudable deposit of pus, has occurred, having within it the very character of decay. This decay may take place within the blood after absorption, or within a part, as any gland after deposition, causing an inflammatory exudation about the part, and a pus secretion from this as the readiest means of expelling the intruding substance. We think this the whole process of this pus deposit,—a true phlegmonous erysipelas of deep-seated parts; for you will observe about these parts, should the deposition be, we will say, in a neck gland, that about it is the true erysipelatous inflammation, and the constitution suffers in the way it is wont to do, had the disease displayed itself in superficial, instead of deep-seated parts. The phlegmon undermining the tissues of an arm, or other part, burrowing among the muscles, and dissecting them out by the inflammation of their connecting areolar tissue, and giving exudation to a copious fœtid discharge, has received the name of deep-seated erysipelas, phlegmonous erysipelas, phlegmonous inflammation of the areolar tissue, etc. This inflammation has most probably come on at first with an erysipelatous blush on the arm, or with distinct points of pus deposition occurring here and there. The inflammations, we hold, are all a difference of degree, not of kind; more common, it is true, to the superficial than deep-seated parts; but commencing with the same chill, or cold stage, with a fever and constitutional symptoms of the same kind; showing the like intermitting character, with the like biliary or chylo-poetic derangement; and cured by the same means.

The general peculiarities of this erysipelatous effusion seem to be, a likeness at first to serum; a want of any tendency in neighboring parts to absorb it; a subsequent change into a yellowish, turbid, ichorous, or imperfect pus formation; the comparative inability to maintain its life when in contact with living structures for any length of time; its tendency to cause tissues in contact with it to assume its own state of decay; the infrequency of its assuming the true pus, or adhesive, or fibrinous type of epigenesis. If these things be true of this effusion, how improper it is to say this or that tissue is the only one that can participate in the effusion! In taking off a limb, we do not say the skin secretes pus—the periosteum, serum—the areolar tissue, fibrin,

etc.; but the secretion of all these is of a uniform character; either it is pus or lymph, or an imperfect serum, giving origin to ichor globules, imperfect pus globules, sanies, etc. This is but another mode of saying the limb has taken on the erysipelatous inflammation—it may be by the contagion of effete decomposing matter thrown out from neighboring subjects, and finding the proper nidus for its explosion, or for its assimilating other things to itself, or causing them to take on its office in the capillaries of an affected limb; or it may be begotten by innate fault, or weakness of constitution, imperfect power of exuding a proper plasma. Either case, we suppose, betokens an asthenic condition of constitution, and suggests readily the cure, not chiefly directed to the part, but to the constitution; for it is not to be supposed that the capillaries of the thigh take on erysipelatous inflammation while those of the forearm would have been exempt; and he who depends, in the treatment of such an inflammation, on mere local applications, will find himself grievously perplexed and disappointed. It is this imperfect appreciation of cause which has led to the negative death of so many subjects in hospitals, in private practice, and in armies. It is the cry the constitution here utters for help, for tonics, and for stimulants, that has been often disregarded, of which we complain. It is a narrow channel, and requires an adroit steersman to guide to a successful issue between starving and stimulation; but we adopt part of the words of a famous author, and say, Whenever you are in doubt, stimulate!

We think this disease, unless when contagious, arises from causes generated within the body, which causes have assumed their impulse and primary start from hot, cold, moist, dry, or changeable conditions of the atmosphere. We use these terms, not because they express the facts of the case, but that they approach closer to them than any others. It is probable they are far from designating the truth; and, taking them in their extremes, they are indifferent terms for denoting the great variations that occur in secretion, in innervation, in exhalation, and most of the important vital acts, that vary so frequently with the hours or the days or weeks of existence; and it requires more reasoning and a greater array of facts than the world has yet known, to convince any observer who has lived in America, in the latitudes of 45° and 25°, that electricity is much concerned in disease.

However, it is certain that dryness or moisture, elevation or depression, by themselves, or by some circumstances accompanying them, modify most of the stages of assimilation in the human body. Very much is owing to habit, not only in those unused to the climate, but in those accustomed to it; for if a man has an organic life in the habit of accommodating itself to change and vicissitudes of most kinds, he will undoubtedly weather many an epidemic, or miasm, or east wind, to which his neighbor, made up of less ductile materials, will fall a prey. This habit, like those of the animal body, is acquired in a great measure by exercise, that is, giving it opportunities to display itself. This is the cause, we think, of the proverbial health of travelers, voyagers, and those who often change their abiding places.

Certain conditions of the atmosphere, not amounting to a noxious state of it, are eminently productive of disease, such as its dryness, moisture, rarity, heat, or changes; even the sum of these may be in the last term, for neither of the other properties, when constant, produce ill effects in a body accustomed to tolerate them. The skin is the great secreting surface affected by these, which is only saying that the liver and kidney must participate in a great degree. The liver has been so uniformly affected in erysipelas, that it has been occasionally said to be the direct cause of the disease; and in atmospheric erysipelas it seems to play the second part in causing it. It is the want of proper depurative secretion, we hold, that causes erysipelas when the remote cause is atmospheric influence: the skin refusing to eliminate matters, from the blood, it has been in the habit of throwing forth, they seek their next natural outlet by the liver; the burden of the work is thrown on the liver. In erysipelas arising from a wound, the part itself is never subject to a proper, healthy, pus exudation; the constitution, from some fault, or from matter previously thrown into the system by improper secretions from the wound, has a morbid agent within its blood, which gives signs of its presence generally in the spot where it entered. It is an agent generated in the system itself, not from without, unless it may be in the case of contagiousness of the disease, the facts going to prove which seem conclusive. There is an astonishing difference in the various fluid excretions taking on the putrefactive process at different times, which process may be without or within healthy tissues. Pus will remain pure, both within and without the body, for a long time; blood for a length

of time, if in contact with living texture; but that peculiar fluid known as ichor, seems to be subject to quick decay both within and without the system; it may be likened to, and probably is, an imperfect pus formation. If there is not sufficient force in the system to fabricate and perfect this pus exudation, it is thrown forth in germinal dots, we suppose, with serous exudation, but it has not received that impulse of vitality which would enable it to assume proper function and growth; the consequence is, its speedy decay, both around and within the vessels of the part where it was destined to act. Blood and pure pus will remain fluid and pure and alive when enveloped by living, solid tissue; but the erysipelatous exudation will take on the putrefactive process, and communicate it to the tissue it touches, even when surrounded by living walls.

Women in the puerperal state, says one author, were most exposed to its ravages (namely, epidemic erysipelas). So, naturally, they would be, with a raw, inflamed surface, like the interior of a womb, for the disease to seize on. Men suffering from amputations would have been alike exposed to its ravages; for this epidemic atmosphere around them was the same as a hospital atmosphere where the disease was common. It is singular that observers will deny the contagious nature of erysipelas as an epidemic, and still acknowledge that it is so in hospitals. Its epidemic ravages, in many parts of the Western States, have repeatedly made a hospital of a whole neighborhood; a better ventilated one, doubtless, than that within closed walls; but, still, there are poisons, as there are scents, that no system of ventilation will thoroughly purge off. In such a neighborhood, the effect is the same as in a highly charged miasmatic atmosphere. A man need not have an inflammation of his skin or fauces, or be diseased so much as to keep his bed and call himself sick; and yet he will be seized at that time by the erysipeloid or malarial disease; presently it may burst out with every symptom full blown, or it may continue as it is for weeks,—the patient ailing and drooping, but with the signs of no positive disease developed. A humid air, however, a wound, a partially digested meal, derangement of renal, dermal, or liver secretion, parturition, and a host of other contingencies, will excite the disease to a full display of its violence. Here the morbid cause is already in the blood; a full degree of health being inconsistent with its further advancement; but let the tone be lowered and the system called

upon to exert itself for the cure of an injury or a faulty secretion, and the effort is too great; there is here a sthenic state, combined with an asthenic cause; we have Hunter's stimulus of imperfection, or undue amount of action for the supporting power; a state in which depletion acts as a tonic; in which bleeding, purging, and quinine reduce the pulse, act as anti-congestives, restore equilibrium, promote secretion from sudorific glands, and act as depuratives through nearly every channel whence excrementitious matter can be eliminated: in the physical, as in the mental system, it is equilibrium and balance that constitute strength; an improper amount of functional activity always verges on disease.

Gout is so rarely seen in America that but few physicians have had opportunity of noticing the intimate relations of this disease and erysipelas. Cullen especially insists on their connections. This would be in accordance with what we suppose is the true pathology of the diseases; the causes being faults or defects in either assimilation or depuration; in stomach; in intestine; in lymphatic canals, glands and ducts and bloodvessels, for assimilation; or in skin, kidney, intestine, or liver, for depuration. Erysipelas, as well as gout, is begotten within the system from some fault or poison there; but the poison of erysipelas, we suppose, may enter either by lungs or skin, when it is extraneous as a cause, begetting its likeness within the blood it enters. In this it differs from gout, which is wholly brought about by causes generated, positively or negatively, in secretory or assimilative track; but so may be erysipelas. Some persons suffer from it from causes similar to those that generate urticaria; namely, merely indigestible articles of diet,—onions with one, and shell-fish with another; and it is a noticeable fact, that such persons are not generally those of very weak digestive powers, but of peculiar idiosyncrases as regards such powers. We think the fault lies beyond the stomach and intestines in the majority of such cases, and that the malaise of indigestion does not frequently accompany them. It is only by experiment in such cases that we can arrive at the cause, the feelings will not guide us; the offending substances to the first courses of assimilation, are apt to derange the whole track of alimentary canal, which is not often the case in these diseases. A victim to repeated attacks of erysipelas may feel so well as regards his digestive apparatus, after a meal which will subsequently produce erysipelas, as to be ignorant what single article of diet was the

cause of the disease. These, and some other things, seem to mark the fault as one rather of elimination than of assimilation; but, it is probable that, like gout, both defects enter into the causes. I have found that it is occasionally associated, in females leading sedentary lives, with obstinate constipation; the effects of this constipation being the causes of the disease, reabsorption may take place here. The treatment, in such cases, is obvious, evacuating the intestines, and giving a stimulus to their secretory power, so that the offending agent may be expelled by the same avenue through which it entered. Such cases constitute the simplest forms of the disease, though the symptoms are often grave and threatening. We cannot doubt that the poison producing many of the exanthemata is capable of being expelled, not by one only, but by many channels, and to this fact we refer the cure of slight cases of the disease by excretion into the intestinal canal. The mercurial treatment, so much favored by many, may probably act in this way, though the other excretions may aid in the expulsion; but I suppose it is on that immense extent of depurating glands, the sudorific glands, that our chief reliance must be placed in this disease, as it seems to be these glands, or the mucous crypts answering to them, that are generally implicated. It is not improbable that the poison may enter by the skin, though the lungs seem to be the most natural mode, we are not convinced that the stomach, and intestines even, are incapable of introducing morbific agents, such as produce erysipelas and intermittent fever; but on this subject there will always be difference of opinion. The late Dr. James Johnson, of London, makes some excellent remarks in his work on the diseases of warm climates, on the introduction into the system of the miasmatic poison by the water of wells and rivers; and it is the very general belief, in miasmatic districts, that such is the case.

Erysipelas as an Epidemic.—Viewed in this light, the disease demands attention from physicians in the West. We suppose small-pox or cholera would not cause greater consternation in many neighborhoods, than the appearance of that violent type of erysipelas known, from a prominent sign, as the "black tongue;" but even when unaccompanied by this feature, the disease is much dreaded in Western States; and the almost universal belief that it is contagious, or at least epidemic, has led to great suffering and privation. We believe it is a disease more common in

the West than in the East, and, from what we have seen and read and heard of it, are disposed to think that no part of the earth has suffered more from epidemic erysipelas than Illinois, Indiana, Missouri, and parts of Tennessee and Iowa. There is scarcely a year, or season, in which you may not hear of several centers of the disease in these States. Michigan, Wisconsin, and Minnesota Territory, have also suffered much from it. It has raged with great violence on the plains on the route to California; has been very common and of a grave type in Santa Fe; and in California, is a frequent and much-dreaded disease. In wet and cold spring months, it is common in Louisiana and Texas; it extends, as an epidemic, from Maine to Mexico, from Minnesota Territory to Florida. I have seen it, however, much less frequently in the States south, than in those north of Missouri; it is not a disease of a hot, dry climate, but (though occurring in all climates and latitudes) rather one of a high, cold, and damp situation.

It is singular that those situations in the South that give origin to the local cause producing intermittent and other fevers, having regular periodicity as their type, are not those, as far as my experience and reading go, that favor the erysipelatous inflammation; nay, I am certain this inflammation is rare in such situations. The most decidedly unhealthy spot I have ever been in, so far as periodic disease is concerned, (on the Suwannee river, in Florida) had no case, according to my reports, of erysipelas during the time I was there, though the secondary inflammations of skin and mucous membrane were very common. These inflammations of the skin—deep-seated toward their close—differed, from the first, from erysipelas in their character, partaking more of that of the inflammation which accompanies whitlow, and which is so common where the air is highly charged with malaria; inflammation tending to be concentrated, to affect the system lightly, and to terminate by suppuration, whose course was, from without to deeper parts, instead of spreading on the surface, and whose cause was any irritation of skin, from a musquito bite to a musket-ball wound. This is the inflammation of malaria, or that cause producing intermittent fever; mere dampness or moisture will not produce it, as they know very well who have seen it in the proper places; but it is not an erysipelatous inflammation; its type is the burrowing, concentrated pus formation. It attacks those who never suffer from any other form of malarial disease, and it does

not accompany intermittent fever, but its cause. This fact is conclusive to my mind (though I cannot expect that it will be to others who have not had the opportunity of making the observation) that the cause of malarial disease is not the cause of erysipelas. The two diseases are occasionally found preying on a neighborhood together, but they are more frequently (according to my own observation and that of others) found apart. Add to this that the geological homes of the two diseases are different. I have treated erysipelas in the marshes of the South; in alluvial soils, or in the latest formed limestone strata; on the primary rocks in the neighborhood of Portland and Holton, in Maine; on the Silurian system (or that answering to it) in upper Iowa; and in the transition and secondary limestone of Minnesota Territory. It is found high up on the mountains, among the primary rocks, in California and in New Mexico, and seems in those countries to be partial to elevated table, or rocky situations. Intermittent fever, on the contrary, is a disease common in low situations, which is but another term for expressing its partiality for alluvial deposites; but it may be found, and is found, on the transition period, and there is no reason why it should not be found on the primary granite or sienite, or gneiss, if covered by vegetable growth, or giving exhalations of a moist character. But where these things do not exist or are rare, among primary rocks (or those near them in point of age), there you will find erysipelas, but not intermittent fever.

The effort that has been occasionally made to associate disease with a particular geological formation, is undeserving of notice, unless this formation is connected in the mind with its vegetable growth, with its moisture (either on the surface or from beneath), or with some immediate combination of circumstances or places. It has never been made apparent that any rock, *per se*, gives origin to disease; it is the growth, the moisture, the exposure, or the relative position of the rock that determines its hygienic conditions, not its composition; unless it is made up, like part of the limestones of almost all countries, of animal debris. These, however, occur in such small quantity that they have never, according to our knowledge, been insisted upon as causes of disease; unless when used as articles of diet, a rare occurrence.

The frequent ravages of erysipelas in hospitals and in apartments kept dry and free from malarial influence, shows that the cause of the two diseases is different.

There is a singular result arising from slight injuries to the skin, which is common in elevated and dry situations, both in the North and South, in those who are not accustomed to the climate. I have observed this result repeatedly, and at very different intervals. One unused to the climate will enter such a situation, and every bite of an insect or scratch of the skin will take on a circumscribed inflammation, of an inch or more, of the true erysipelatous character; although erysipelas may not be present at the time among the inhabitants, and no tendency be present in them to this form of inflammation; but to a stranger this inflammation is most troublesome, accompanied by heat, itching, or pain and swelling of the part. In fact, this is a true traumatic erysipelas, of a slight grade, but produced by the causes, or at least some the causes, most unfriendly to malarial disease. namely, elevation, absence of marsh, or vegetable decay, in the neighborhood, and dryness of the atmosphere. It is only common to those unused to the climate, and may arise from the dryness of such climates producing their corresponding effects of impaired action on the skin, amounting to partial cessation of its functions: children, in going from a moist and low situation to a high and dry one, are grievously afflicted in this manner.

The most striking difference, to my mind, between what I have been in the habit of calling the malarial inflammation mentioned above, and the erysipelatous inflammation, is the very strong tendency shown by malaria to take on what is termed the purulent dyscrasia, meaning thereby, a strong tendency, where there is a wound or passive congestion of blood, to the formation of pus; while one of the most distinct features of erysipelas is its not producing this pus formation; for, in fact, the first exudation of serum generally, in this disease, is opposed to the formation of pus as a linking and healing process, in the cure of the part, to be accomplished afterwards. There is a want of lymph exudation in most of the stages of the disease, and consequently a want of the adhesive process, and a greater tendency to subsequent loss of the part; the reparative stage is slow, and not accomplished at all frequently; hence the propriety of the treatment, in the deep-seated states of the disease, of deep and free incisions, giving vent to this fluid, half-decomposing exudation. operating as an irritant to all contiguous parts, and giving its own character to them.

Another singular peculiarity which accompanies this tendency

to pus formation, and which I mention as having seen so common in malarial districts, is the rapidity with which a healthy recovery from wounds is accomplished. It would seem as if the pus dyscrasia favored the speedy and healthy closure of the wound, and prevented any improper constitutional symptoms. The wound (as in all diseases where malaria is common) may take on regular periodic pains, which are readily subdued by quinine. Tetanus, constitutional contamination from pus, erysipelas, sloughing, or gangrene, are almost unknown in the most unhealthy malarial districts in which I have practiced.

The Therapeutics of Erysipelas.—The consideration of the pathology of the disease, is one of the best means of suggesting the cure; if the fault is in a blood-poison, generated within or without the body, the cure will be the elimination of this poison; and it is astonishing how various, and yet how harmonious, are the agents therapeutically employed in the disease. The only difference is in the sthenic or asthenic, the plus or minus, degree or character of it; but even these may be reconciled by the accurate study of the phenomena of these states in erysipelas. We hold, there is no essential specific fever, with whatever grade of excitement accompanied, that does not imply a deficient, or at least a middle state of power, even where the requisites for the cure of the disease presuppose a plus amount of this power. This condition does not contra-indicate blood-letting, one of the most powerful of means of debilitating the system; because the minus condition of cause in the background does not imply the minus condition of symptoms present. The happy phrase "the stimulus of imperfection," best expresses the posture that affairs assume; it is the stimulus of the system wrestling with an opponent. The morbid agent itself is a powerful cause of irritation; what lessens this irritation lessens it. All the eliminating cells and surfaces have proven insufficient for its removal; they may have been taxed to their utmost, and have finally failed: the very failure, though preceded by unusual exertion, implies weakness. The poison is left in the blood, to commit its ravages on a particular part, or on the system at large, if it seize on no particular tissue. We know of no favorite and successful treatment that does not tally, however discordant it may seem, with these views. The disease ranges through all degrees, from an erythematous blush to the burrowing areolar inflammation, and to the states coarsely,

but significantly, called *swelled head* and *black tongue*. A simple calomel cathartic may cure this first slight grade; if it is more potent, the combination of antimonials is often successful, and finds favor with nearly all physicians.

Here occurs the difficulty of reconciling lowering agents, when we say the system is now suffering from defect of power to purge itself of the offending substance. The distinction and reasoning are clear enough, if we consider that this undue amount of action which is present may, if we do not moderate it, cause much mischief, more than we are likely to cause by any weakening of power or force: in fact, until we go very far in our depletion, we do not touch the power, but only quiet the action. Tartar emetic, by lowering the pulse, does not of necessity weaken the innate forces of the heart, but they are equalized and balanced. Irritability is lowered in the same ratio that the force is increased. It is in accordance with Marshall Hall's "law of life," which is as applicable to pathology as to physiology. The high stimulus implies low dynamic: this blood-disturber acts as an irritant, a stimulus to the system, implying thereby a greater expenditure of nerve force, and consequently a low dynamic power. Here is the secret, we think, of the apparently conflicting and yet successful modes in which erysipelas has been treated: whilst one physician is satisfied with porter and iron, another is equally contented with blood-letting and antimony; and the disease, in both cases, may be treated properly and successfully. We are convinced that the proper treatment in all cases, high and low, is that directed to the augmentation of force in the "dynamic," in the nerve centers; and we are not surprised that the popular curative agent now is iron,—in fact, we are pleased that it is so. It is impossible that any agent can go beyond quinine, in our experience. We assert, after a considerable experience in both diseases, that quinine does not cure intermittent fever with greater certainty than it cures erysipelas. There is in this but one proviso, and that is, that it is given in a sufficiently large dose: the short-sighted timidity of many physicians is a bar to their success. We do not give opium as a gentle anodyne, in the same doses that we give it in a mania-à-potû; and we may be satisfied that erysipelas is a disease essentially of a high action and stimulus, requiring a proportional amount of any curative agent. If we have not experience enough, or confidence enough in ourselves, to give quinine in greater doses at one time

than six to ten grains, then we had better not try it; it is doing injustice to a faithful agent, to treat erysipelas with quinine if you tremble at a twenty-grain dose of it, or if you are in the habit of treating intermittent fever by "a grain and a half every two hours." Doses like these in erysipelas will only increase the disease; they will heighten the stimulus, when that is the thing you wish to lessen, and at the same time will give no additional power to nerve force. The horror with which some physicians look on the administration of large doses of quinine would be merely absurd, were it not that this is negatively the cause of many deaths, or of long and annoying suffering. Erysipelas is never successfully treated by quinine unless the dose at one time, and repeated according to the occasion, is from ten to thirty grains. If the physician does not know enough about the drug to have the proper confidence in giving this, then he had better resort to tartar emetic, cathartics, iron, etc. These will be more in accordance with his own mental constitution, and not at variance, probably, with that of the patient. One physician directs his means to the lowering of the stimulus, of the irritability, and to depuration; another seeks to give power to the innate forces, to the nerve centers, that this power may spread itself from them through the system; for we suppose the most devoted humoralist will not deny that the first signs we have of the acts of many remedies, are the impressions made on solids. But this augmentation of nerve force by a curative agent, implies a like augmentation in power in all parts of the system, not in *stimulus* of an undue kind; for it is a representative of weakness, it is disease, and belongs to pathology. The proper medium, for any single animal or system is true health and physiology: by lessening the stimulus we heighten the power negatively, for we do not call on it for so much of an expenditure.

The action of large doses of quinine in erysipelas, we think, is twofold; and that it accomplishes two great objects, the full accomplishment of one of which, by other remedies, is often sufficient to cure the disease. The first and most prominent of these, we think, is its sedative action, a term hard to define, but clearly understood by those who have seen and felt it. It is difficult to say whether this is from or to nervous peripheries, in the first place, but both animal and organic life are impressed by it. This sedative action is opposed to the show of stimulus; and Marshall Hall has reasoned, with great acuteness and force, that

as a physiological act, the lowering of stimulus in the system implies a positive increase of force in nerve centers, and that the reverse equally holds good. In fact, this is merely a clearer and happier enunciation of Hunter's "stimulus of imperfection."

The profound remarks of Henle respecting the periodicity of many physiological acts, give us a clue, though it must be acknowledged not one immediately tangible, by which we may in time reach the secret of the anti-periodic power of certain drugs, such as antimony, opium, and bark; but the truth is, these are only anti-periodics in degree; there is scarcely a tonic, a stimulant, a diaphoretic, or cathartic, that is not also opposed to the periodicity of certain physiologic or pathologic conditions. We suppose quinine acts in the same manner in erysipelas that it does in intermittent fever, not as an abstract periodic antidote, but by its contra-indication to some blood disorganizer, that need not be the same in the production of one disease as in another. There are, as regards living tissues, various poisons, the chemical nature of which we cannot reach, counteracted by one antidote. The class of bitters seem to act as poisons to insect life; ammonia is efficacious against the venom of the bee, scorpion, and serpent; sulphur is a poison to cryptogamic life; and it is very probable that all the blood-poisons of the human body have something essentially alike in their nature, though acted upon differently by the same agents. That the poison producing yellow fever is different from that producing the high congestive fever of the South, the action of quinine shows; but that the poisons of erysipelas and intermittent fever are the same, though counteracted by the same agent, we by no means believe, for the diseases do not go together hand in hand, neither are they characterized by the same degree of periodicity. As we obtain more philosophic and expanded views in pathology, we are convinced that the crises and critical days of the old physicians will prove the representatives of intermission in vital acts; and the climacterics would seem to show that this intermission may extend through years, as well as days or weeks. We have ourselves observed that dreams on any subject immediately affecting us, do not habitually occur on the first, but on the third night after their occurrence. The renal secretion varies nearly with the hour of the day; and, especially after meals, the renal deposits are in accordance with the food taken in, and other circumstances; and the astonishing changes of the deposits in ague, gout, rheumatism, and lithic acid depos-

its, generally show that their several causes are not so far apart as one, looking only on periodicity as a sign, would infer.

But quinine seems to act also as an antidote to the erysipelatous poison. We have seen the disease really snuffed out by the application of a large dose of this remedy. "If the vessels are relaxed," says Sir John Pringle, "and the blood resolved or disposed to putrefaction, either from a bad habit or the absorption of putrid matter, then is the bark specific." Mercury seems to be the natural enemy and nullifier of the syphilitic poison, ammonia of the poisonous fluid of the rattlesnake; and it seems to us that quinine plays the same part with regard to the erysipelatous poison. "It seems not unlikely," says Simon, in his General Pathology, "that many of the so-called tonics will be found opposed to the destructive changes of the blood, and that their medical efficiency may relate essentially to this opposition;" and he adds these words: "It would be of great interest to ascertain, in this respect, what is the operation of quinine."

Blood-letting, again, is one of the favorite curative agents in the disease. Why it should be so a minute's reflection will prove, at least if the pathology we have considered of it is correct. There is no form of erysipelas where it has been more constantly and successfully used, than the peritoneal,—whether puerperal, or, in the male, from traumatic or idiopathic causes. Serous tissues, of all others in the system, will worst tolerate the presence of congestion. Their proneness to disease is great; they readily inflame, pour out effusion, and of all tissues are those in which inflammation is most speedily fatal. It might easily be inferred, then, that they would not tolerate the presence of fuel to the flames in the shape of blood; and that whatever would decrease the flow and the quantity of it would decrease the material on which this inflammation preys. Blood-letting takes away the cause of offense; beside, it brings about that tendency in the fluid to coagulate more readily, and thus probably to diminish the effusion; it promotes absorption, and favors the elimination by skin and bowels. By the abstraction of so much fluid directly from the circulation, it stimulates to the abstraction of fluids wherever they can be seized upon, and conduces to the husbanding of its own fluid portions; thus not only absorbing partly or wholly, the secreted fluids, but preventing the deposition of more. Blood-letting, however, is only proper in the first stage. If it is postponed until life is weakened by over effort and action, a

speedy lowering of all the vital powers may be the consequence, and the system probably will not rally again. Blood-letting, to a great extent, is a remedy that should only be used in emergencies.

Tartarized antimony is probably the most universal favorite in the treatment of the disease. This is a drug especially useful, in the cases of pus-deposit: the old-fashioned mode of dispersing a bubo by an emetic, even when suppuration had taken place, gives us idea of its action. We think it is in a great degree independent of the emetic action of the antimony,—rousing the absorbents to greater activity; giving a powerful and continued stimulus to the sudorific glands; lowering the tone of heart and capillaries, and thus removing many of the results of hyperæmia; affecting the secretion of kidney and of the whole tract of alimentary canal; in short, operating as the most powerful eliminating agent in the materia medica.

ON THE

MEDICINAL AND TOXICOLOGICAL PROPERTIES

OF THE

CRYPTOGAMIC PLANTS

OF THE

UNITED STATES.

ON THE MEDICINAL AND TOXICOLOGICAL PROPERTIES OF THE CRYPTOGAMIC PLANTS OF THE UNITED STATES.*

BY F. PEYRE PORCHER, M. D.

OF CHARLESTON, S. C.

Natura maxime miranda in minimis.—LINNÆUS.

"Il lui faut un Ouvrage qui recueille toutes ces richesses scientifiques disseminées dans tous ces mémoirs, et les cordonne de façon à faire ressortir tout ce qui est gaillant. Cet Ouvrage n'existant pas, je formai des lors le projet de le composer."

THE paper which we have the honor to present, is supplementary to the "Report on the Medical Botany of the State of South Carolina," prepared by your Committee, and published in the second volume of the Transactions of the American Medical Association. It endeavors to complete that sketch of the medicinal properties of the Phænogamous Plants, by extending the inquiry to the Cryptogamous.

It has been undertaken as a contribution as well to the materia medica of the State as to the history of her resources. Hence, we have not hesitated to embrace in it all available information respecting productions which do not contain properties strictly medicinal, but which subserve any useful purpose. All facts which throw light upon the poisonous properties of plants may be regarded as of service, if only approximately; the possession of these often leading to their application as curative agents, and the history of our therapeia showing, indeed, that from this class have been drawn some of its largest and most important addi-

* It should be stated, that this Report was completed and in the hands of the Association two years since. Its appearance was delayed in order to enable the writer, who was absent in Europe, to make alterations or additions, and to revise its publication.

tions. In a strictly toxicological point of view, they possess, of course, their own inherent value.

On account of the rapidity with which discoveries are being made in this department of science, both in this country and in Europe, and the necessary changes which befall its nomenclature, proverbially fickle, we have included in it also whatever is known respecting those growing in the United States at large, as well as of some which may not be yet ascertained to be natives. The easy diffusion of the minute sporules of these interesting plants, renders this extension of the geographical area within which we are limited the more necessary. By this means, when new genera and species shall be discovered in any particular locality, we may more successfully refer to the following for information respecting their medicinal, toxicological, or dietetic properties.

We have the privilege of whatever of pleasure, of enthusiasm, and of ardor novelty gives to the pioneer in new and unexplored regions, this being a department of inquiry which has had few or absolutely no laborers in this country. The present Report, therefore, requires the embodying of a comparatively large amount of material, in order that our knowledge of the subject may be brought up to the present day; and that future inquirers, being placed in possession of what has been already accomplished, may proceed directly to more experimental researches.

The difficulty of the task is increased by the partial obscurity which invests all examinations among the Flowerless Plants. Notwithstanding some of the best minds in Europe and in this country are ranked among their investigators, and their study attracted, at the beginning of this century, so much attention that the Germans were derided for the "Cryptomania" which prevailed among them, yet the multiplication of synonyms involves them in some confusion, and demands the keenest scrutiny and exactness.

In order to secure as much accuracy as the nature of the subject permits, we have spared no pains to make careful comparisons from the most recent and best-approved works. We have selected, as a basis for the paper, an authority which none will be inclined to question, viz. The "Cryptogamia of England," by Sir William Jackson Hooker; the Rev. M. A. Berkley, equally well known, also being the author of the portion embracing the Fungi. The classification and arrangement, however, is the Natural one, adopting the views of Prof. Lindley.

The ability to prepare, and the value of, treatises devoted to the medicinal properties of productions which contribute so materially to the fine arts, and to the resources of the physician, must keep pace, *pari passu*, with the results of the examination by living investigators into their natural habits. May we not claim, too, that the existence of the former gives additional interest to the latter also?

Had we not the "Musci Alleghaniensis" of Sullivant, the "Lichenes Am. Septent. Exsiccati," of Tuckerman, and the "Fungi Caroliniani Exsiccati," just published by H. W. Ravenel, of St. John's, Berkley, S. C., we should be unable to refer to localities, or, indeed, have any idea of what existed around us. To the able and experienced mycologist last mentioned, we are indebted for many favors,—among others, for furnishing from Schweinitz's "Synopsis" the localities of species growing in North Carolina; from Tuckerman and Sullivant what are found in the Northern and Western States; designating, also—what he has himself seen and studied in the State of South Carolina by a mark of exclamation (!). We may express the confidence which may be reposed in the identity of species corresponding to those in the possession of Mr. Ravenel, as we know that, in addition to his own excellent observation, they have passed under the eye of the best naturalists in Europe.

We have also recently received the "Nereis Boreali-Americana:" or Contributions to the History of the Marine Algæ of North America. By W. H. Harvey, M. D. (Part 1st embracing the Melanospermeæ), being one of the Smithsonian Contributions to Knowledge. This also has enabled us to obtain localities for individuals of this class.

We beg leave to refer to the following authorities, to enable us to consult some of which we were forced to make direct importations from abroad:—

The English Flora of Sir James Ed. Smith. Class XXIV. Cryptogamia. By William Jackson Hooker, LL. D., &c. &c., Regius Prof. Botany in the Univ. of Glasgow. (The Fungi, by Rev. M. J. Berkeley, F. L. S., &c.) London, 1836.

A Treatise on Poisons in Relation to Med. Jurisprudence, Phys., and the Pract. Physic. By Robert Christison, M. D., F. R. S. E., Prof. Mat. Med. Univ. Edinb., 1845.

An Introd. to the Nat. Syst. Botany; or a Systematic View of the Organization, Natural Affinities, and Geograph. Distrib. of the whole Vegetable Kingdom. Together with the uses of the most important species in medicine, the arts, and rural and domestic economy. By Jno. Lindley, F. R. S., &c. First Am. Ed. With an

Appendix by Jno. Torrey, M. D., Prof. Chem. and Bot. in Coll. Phys. and Surg., Univ. New York. Newark, N. J., 1831.

Principles of Scientific Botany; or, Botany as an Inductive Science. By Dr. J. M. Schleiden, Extraord. Prof. Botany, Univ. Jena. Trans. by Ed. Lankester, M. D., F. R. S., Lect. on Mat. Med. and Bot. at the St. Geo. Sch. Med., Lond. London, 1849. (With a paper on the use of the microscope.)

Traité des Poisons, tirés des Règnes Minéral, Végétal, et Animal; ou, Toxicologie Générale, &c. Par M. Orfila, Prof. de Chim., &c. Troisième Edition. Paris, 1836. 2 vols.

Traité de Méd. Légale et d'Hygiène Publique; ou, des Polices de Santé. Par F. E. Fodéré, Docteur en Méd. Paris, 1815.

Botanique Cryptogamique; ou, Histoire des Familles Naturelles des Plantes Inférieures. Par J. Payer, Avocat, Docteur en Sciences, Maître en Pharmacie, Agregé de la Faculté des Sciences de Paris, Professeur à l'Ecole Normale, et Representant du peuple. Avec 1105 Figures, représentant les principaux caractères des genres. Paris. Victor Masson, 17, Place de l'Ecole-de-Médicine, 1850.

The Elements of Materia Medica and Therapeutics. By Jonathan Pereira, M. D., F. R. S. and L. S., Licentiate of the Royal College of Physicians in London, Fellow of the Roy. Med. and Chirurg. Society, Lect. on Mat. Med. at Lond. Hosp., &c. With notes by Jos. Carson, M. D. Phila., 1843.

Dict. Univ. de Mat. Médicale. Par Merat et De Lens. En 6 tomes. Paris, 1833. Supplementary vol. 1846.

Dict. des Sciences Médicales. Paris, 1812.

Dict. d'Histoire Naturelle.

Linnæus' Vegetable Materia Medica. Translated by Whitlaw.

Prodromus' Syst. Nat. Regni Vegetabilis.

Dillenius' Hortus Ethamensis.

Woodville's Med. Botany. 4 vols. London.

Flora Londinensis. Curtis & Hooker.

U. States Dispensatory. By Wood & Bache. 6th ed.

Eléments d'Histoire Naturelle Médicale, contenant des notions générales sur l'histoire naturelle, la description, l'histoire, et les propriétés de tous les aliments, medicaments, ou poisons tirés des végétaux et des animaux. Ouvrage orné de 800 gravures intercalés dans la texte, par Achille Richard, Docteur en Médecin, Prof. à la Facult. de Méd. de Paris, Memb. de l'Acad. des Sc., &c. 4th edition. 2d part Botanique. Paris, 1849.

Josephi Gaertneri, M. D., Acad. Sc. Imp. de Fructibus et Seminibus Plantarum, volumen alterum. Continens seminum centurias quinque posteriores, cum Tabulis Æreis. C. I. Fabring, 1791.

Pursh. Flora Am. Septentrionalis. London, 1816.

Account, by James McBride, M. D., of St. Stephens, S. C., of Lycoperdon solidum (cervinum of Walter), Indian bread, communicated to 12th vol. Transactions of Linnæan Society.

The Botanical Magazine. By Wm. Curtis, author of the Flora Londinensis. London, 1793. In 54 vols. The two last by Sir William Jackson Hooker.

Physiologie Végétale; ou, Exposition des forces et des fonctions vitales des Végétaux. Par Aug. de Candolle. Paris, 1832.

English Botany; or, Colored Figures of Plants, with their essential characters, &c. By James Ed. Smith, M. D., F. R. S., &c. Figures by James Sowerby. 36 vols.

Plantæ Rariores Hiberniâ Inventæ. With concise remarks on the properties and

uses of many of them. By Walter Wade, M. D., M. L. S., Prof. of Botany. Dublin, 1804.

Fungi Caroliniani Exsiccati. Fungi of Carolina, illustrated by natural specimens of the species. By H. W. Ravenel, Cor. Memb. of Acad. Nat. Sc. of Phila. Fasc. I. II. John Russell, Charleston, S. C. 1852–3.

Des Végétaux qui croissent sur l'Homme et sur les Animaux Vivants, par M. Ch. Robin, Docteur en Médecin et en Sciences Naturelles, ancien interne des Hôpitaux de Paris, &c., &c. Accompagné de trois planches gravées. Paris, 1847. (See, also, enlarged edition, Paris, 1853.)

Histoire des Champignons Comestibles et Véneneux, où l'on expose leurs charactères distinctifs, leurs propriétés alementaires et économiques, leurs effets nuisible et les moyens de s'en garantir ou d'y remédier. Par J. Roques, Auteur de la Phyt. Médicale et du Nouveau Traité des Pl. usuelles. 2d edition. Avec un atlas, plantes coloriées. Paris, 1841.

CLASS II. CELLULARES.

Tribe I. FILICOIDEÆ.

Order 1st. EQUISITACEÆ.

Flowerless plants, with sporules surrounded by elastic clavate filaments, and inclosed in thecæ arising from the scales of terminal cones. Vernation straight.

These very remarkable plants, known by the vulgar name of Horse-tails, seem to have no very decided affinity for any existing tribes.

From fossil remains, it seems clear that gigantic growths of them formed a considerable part of the original vegetation of the globe. They have not yet been seen in New Holland. Though said to be slightly astringent and stimulating, and recommended as diuretics and emmenagogues, they are not much employed in medicine. In economical purposes they are found highly useful, for polishing furniture and household utensils; a property which is due to a great quantity of silex below their cuticle (Lindley). According to the observations of Dr. John, of Berlin, they contain full thirteen per cent. of siliceous earth (Ed. P. J. 2, 394). The ashes have been found by chemists to contain half their weight of silica (Jameson's Jour., Jan. 1830, 102). The quantity is so great in *Equisetum hyemale*, that Mr. Sivright succeeded in removing the vegetable matter and retaining the form (Grev., Fl. Edin. 214). In subjecting a portion of the cuticle of

the plant to the analysis of polarized light under a high magnifying power, Dr. Brewster detected a beautiful arrangement of the silicious particles, which are distributed in two lines parallel to the axis of the stem, and extending over the whole surface. Each particle has a regular axis of double refraction. He concludes that the crystalline portions of silex and other earths, which are found in vegetable tissues, are not foreign substances of accidental occurrence, but are integral parts of the plant itself, and probably perform some important function in the process of vegetable life (Grev., Fl. Edin., 214). Lind., Nat. Syst. Bot. and Outlines of First Principles, 309.

Equisetum hyemale, L. Lenhossek recommends this and the E. limosum, L., as diuretics. A decoction of the dried plant is employed, the fresh being too active. Two to three drachms are added to a pint of water, of which the dose is three to six ounces every three hours (Archiv. Gén. de Méd. xvi. 455). In atonic dropsy they are considered too active, causing hematuria. They might be given in the form of powder. Some consider them emmenagogues. They have also been administered to promote the cicatrization of the ulcers in phthisis. Hoffman prescribed them in malignant fevers. Mathiole (Comm. 386) states that they constipate; though portions of the plant are eaten in Rome and in Tuscany. One species may be substituted for another (De Cand. Essai, 511). The stems of the E. hyemale are employed in polishing wood, cleaning vessels, &c. M. Diebold found it to be composed of chlorophylle, wax, yellow extractive matter, gallate of lime, malic acid, oxide of iron, salts, &c. MM. Pictet and John found silica in large proportion. Bull. des Sc. Méd. Fér. xvi. 459. Merat & De Lens' Dict. de Mat. Méd. 111, 127.

Equisetum limosum. The diuretic power of this plant, also, according to the comparatively recent investigations of Lenhossek, in Vienna, are well marked, to a sufficient degree to produce hematuria (Edin. Med. and Surg. Jour. 1827; Archiv. Gén. de Méd. 16, 456; Jour. de Chim. Med. iii. 554; M. Richard, Elem. d'Hist. Nat. Med. 11, 55). According to the observer alluded to, the plant does not irritate the digestive canal, nor derange the circulation. They are advised in cases of serous accumulations induced by atony. An acid is obtained called equisetic, analogous if not similar to *maleic*, from the distillation of malic acid.

Equisetum variegatum. The diuretic power of the E. hyemale is shared, though to a less degree, by this, the E. ramosum and E. palustre. Richard.

Order. II. LYCOPODIACEÆ.

Lycopodium selago, L. Dr. Winkler, of Insbruch, mentions that the infusion of this plant is used in the Tyrol for killing vermin on animals; and that unpleasant accidents have been produced in man by its accidental use. Its effects appear to be sometimes irritant, but more generally narcotic in their nature (Repert. Fer. die Pharm. xiv. 311); Christison on Poisons. Lindley says that it excites vomiting. The powder contained in the thecæ is highly inflammable, and is employed in the manufacture of fireworks. According to M. Vastring, this species is likely to become of importance in dyeing (Nat. Syst. Bot. 314). Some authors look upon it as very dangerous, a minute dose producing violent vomiting, in larger quantities acting as a narcotic poison (Bischoff, Bull. de Sc. Méd. Fér. xxi. 430). Zingler having taken a small quantity, found himself sick in four minutes, and fell into a state of syncope; vinegar relieved him, but he did not recover his memory for some time. The Selago enjoyed a great reputation among the Druids, and they expressed the juice for many maladies, particularly those of the eye. It is supposed that the plant referred to by Pliny is not this (Glossaire, 284; Archives de Méd. iv. 380; Merat & De L., Dict. de M. M. iv. 168.

Lycopodium clavatum. This also excites vomiting, its thecæ likewise contains an inflammable powder, and M. Westring thinks it will become useful in dyeing. He asserts that woolen cloths boiled with Lycopodiums, especially this species, acquire the property of becoming blue when passed through a bath of Brazil wood (Lind., Nat. Syst. 314). The powder sold in the shops as vegetable sulphur, consists of the extremely small, pale yellow particles (sporules?), employed as a dusting powder for children, and in pharmacy for enveloping pills to prevent their adhesion (Pereira, Mat. Med. and Therap. ii. 47; Murray's Apparat. v. 489). It is also used as an application to serpiginous ulcers. In Poland it is used in Plica, hence termed *Herbe à la Plique.* The

decoction is given internally in rheumatism, in retention of urine, in nephritis, and in epilepsy. It passes for an anti-spasmodic, and is employed in pulmonary diseases, hence the name *Pulmonaria.* Martins says that in Russia, in Hungary, and in Gall, it has been administered in hydrophobia (Bull. des Sc. Méd. Ferus. xxi. 430). Some assert that, in doses of thirty grains, the powdered plant will vomit. M. Cadet, by analyses, showed that the powder contained wax, sugar, extractive matter, alumina, probably combined with sulphuric acid, iron, and some salts (Bull. de Pharm. iii. 31; Bibl. Britan. xxv. 278). Alcohol dissolves one-eighth of it. The principal use of the powder is in making artificial lightning, as it bursts quickly and throws out luminous points (Bull. des Sc. 89; Archer. Gen. de Méd. x. 133; C. F. Garmann, de Musco Terrestri, Musc. Cur. Nat. 1670; G. W. Wedel, Diss. de Musco Terrestri Clavato, 1702; M. & De Lens' Dict. de M. M. 167; M. Richards, Elems. d'Hist. Nat. Med. ii. 53). "It is said to restore ropy wine in a few days" (Wade's Plantæ Rariores, 94).

Lycopodium phlegmaria. "Reputed to be aphrodisiac."

Lycopodium cernium. Among the Antilles is used as a diuretic and as fomentation to gouty tumors. The vinous decoction is given in tenesmus, dysentery, scurvy, &c. The powder is reputed carminative (Flore Méd. des Antilles, iv. 73; M. & De L. iv. 166). The powder is found serviceable in the cure of sanious ulcers, according to Dr. Foerster (Abeilé Médicale, July, 1845).

Lycopodium lepidophyllum. This is hygrometric, and, rolled into a ball, will indicate humidity of the atmosphere (Supplem. vol. to M. & De Len's Dict. de M. Méd. 442).

Lycopodium complanatum. In Germany it is regarded as a powerful lithontriptic—given in tincture (Pallas' Voyage, i. 93). Westring, Extrait du Mém. sur les teintures que l'on peut retirer des Lycopodes. Bull. de la Soc. Phil. iii. 224; Merat & De Lens' Dict. de M. Med. iv. 167.

Lycopodium hygrometricum, Mart. In Brazil, according to Martins, it is employed to restore the generative faculties (Journ. de Chem. Méd. vi. 213; M. & De L. iv. 167).

TRIBE II. MUSCOIDEÆ (*Moss-Like Plants.*)

ORDER I. MUSCI, LINN. (*Mosses.*)

AMONG all of the plants of the Class Cyptogamia, no Order, perhaps, presents, says Sir Wm. Jackson Hooker, a more varied and exquisitely beautiful structure than the mosses, whether we consider their foliage, their capsules, or the delicate single or double fringe which surrounds the mouth of the latter. They exist most abundantly in temperate and cold climates, attaining perfection during the winter months. They invest rocks and trees, especially in a northern exposure, to a considerable extent, "affording," says Linnæus, "a harbor to an immense number of insects, protecting them lest they should be destroyed by the frosts of winter, or be parched by the heats of summer, or withered by the vicissitudes of spring, or decayed by the damps of autumn."

The following references respecting this order we obtain from Merat & DeLens' Dict. de. M. Med. iv. 499; G. G. Richter, Diss. de Muscorum notis et salubritate, 1747; Pultney, Mem. sur les Mousses (Phil. Trans. 1758); Linnæus, De Usu Musc. 1766, in Amœn. (Acad. 145); Vogler, Diss. de Muscis, 1774.

Dicranum bryoides, Sw.
Fissidens " Hedw.
Hypnum " Linn.

The moss which engaged Mungo Park's attention so much in Africa as to revive his drooping spirits when sinking under fatigue, is this species, as I have ascertained by means of original specimens given to me by his brother-in-law, Mr. Dickson.—C. Eng. p. 36.

Fumaria hygrometrica, Hedw. (Hygrometric Cord Moss; grows on old walls and woods). It undergoes such changes in wet and dry weather as to make an excellent hygrometer.

Polytrichium Commune, L. (Common Hair Moss. Heaths and woods in sandy soils.) It is inodorous, and slightly astringent, and is said to be deobstruant, diuretic, lithontriptic, sudorific, and emmenagogue. J. P. Bonnafoux speaks very favorably of it with respect to the property last mentioned; and he relates

twelve cases of success in its use. He gives drachm doses of the infusion mixed with milk. The decoction is said to cause the hair to grow. According to Ferrein (Mat. Med. 11, 67), a physician of Aigle found it very efficacious in pleurisy. Flore Med. v. 279. It is now supposed to be inert (De Cand., Essai, 310). It is employed for economical purposes, making cushions, beds, &c., which are free from insects and moisture. Rév. Med. ii. 405. 1831. Merat & De L., Dict. de Mat. Méd. v. 445.

Bryum affine, Brid. *Mnium cuspidatum*, Hedw. sp. M.	Many stalked Thyme thread Moss. S. C. to Northern States (H. W. R.)

The capsules are the favorite food of hares and rabbits. C. Eng.

Fontinalis antipyretica, Linn. Greater Water Moss. Rivers and stagnant water. Fl. June. New England and Northern States.

The specific name was given to the plant by Linnæus, in allusion to the use made of it by the Swedish peasantry, who fill up with it the spaces between the chimney and the walls in their houses, and thus by excluding the air prevent the action of the fire.—C. Eng. 13.

Hypnum purum, Linn. (Neat Meadow Feather Moss.) On the ground, on banks, and in woods; abundant. Fl. Nov.

Dillenius informs us that the specific name of this very common moss is derived from the use made of it in some parts of England, in cleansing worms for fishermen.—Cypt. Eng.

Order II. HEPATICÆ (*Liverworts*).

Minute frondose plants. Their substance is loosely cellular, in general easily reviving after being dried, by the application of moisture. Cryptogam. of England.

Jungermannia planifolia, Hook. " *nemorosa*, Lindenb. *Scapania* " Nees.	Flat-leaved Jungermannia. Moist rocky places. S. C.! to N. S. (H.W.R.)

This species has been observed by Mr. Wilson to have a very

fetid smell, resembling castor, giving out its odor while drying, and on being again moistened.—C. Eng.

Anthoceras Linn. (Sides of ditches.) Two species in S. C. (H. W. R.) These, among the lowest order of vegetables, are nothing more than a simple membranous expansion resting on the earth, their structure being homogeneous; hence every portion is in direct relation to its nutritive materials, and these in so elementary a state as to enable us to examine into the most simple states of which we can conceive. For further observations, see Payer, Botanique Crypt. 1850.

Marchantia hemispherica, L. } Sides of streams. April.
Rebouillia, Raddi. } S. C.! to N. Scotia.

Dr. Short, physician to the Royal Infirmary at Edinburgh, being struck with the insufficiency of remedies for certain dropsies, resolved to try this plant, which was a popular remedy in Ireland. In a large number of cases it acted surprisingly well; but, like most of the diuretics, it failed in others. The decoction may be used, or a cataplasm, made of two pounds of the fresh plant, "lavée et miser à bouillotter dans un litre d'eau pendant douze heures," adding a sufficiency of water upon its evaporation. The pulp beaten up is used as a cataplasm. It was found to produce considerable transpiration, and acted powerfully on the kidneys.—Edinburgh Med. and Surg. Journal, 1833. Merat, from which we translate in quoting the above, supposes that the M. polymorphia possesses similar properties. Dr. Levrat-Perrotan employs with success the decoction in gravel, and he reports cases in which it was of much service. Dr. Gensoul uses it as a diuretic (Rev. Méd., Janvier, 1845). The decoction may be made with an ounce or two of the plant added to one pint of boiling water.—Merat & De L., Dict. de M. Méd. Supplem. vol. 457.

Marchantia polymorphia. Moist situations; July. This, with the above and the M. conica, are regarded as active diuretics. By the beautiful researches of Mirbel upon the nature of the sporange of this plant, a close analogy has been demonstrated between these and the anthors of phanerogams. See also the researches of M M. Decaisne, Hedwig, and Schmiedel, respecting the Zoothiques; Payer, Botanique Cryptogamique, 1850; for review and notices of

which, the reader may consult the Charleston Medical Journal, Jan. 1851. The little filamentous bodies found in the reproductive organs of mosses, hepatics, and fuci, are endowed with motion, and are known as *bryozoaires*, and by others as phytozoaires. According to Mirbel, the action of light and moisture upon the sporules of the M. polymorph. was so remarkable as to determine the development of mouths (stomata) on the one surface, and of roots and nerves on the other, and *vice versa*. More than this, the two faces of the lozenge-like body being alike, the prolonged action of light upon one side, and of shade and humidity upon the other, sufficed to dispel the resemblance, and to induce unequivocally the approaching difference in the two surfaces, so that one could very easily distinguish them into superior and inferior, without changing their position.

Order III. CHARACEÆ (*The Chara Tribe*).

Aquatic plants, always submerged, composed of simple or compound membranaceous brittle tubes, often invested with a calcareous covering. Dr. Brewster denies that the calcareous matter with which several Charæ are invested, arises from that substance being held in solution by the water in which they grow; for he discovered that the plants were phosphorescent when laid upon heated iron, so as to display their entire outlines in the dark; also, that each group or mass of the calcareous matter (which is held to the stem of the plant by a very fine transparent membrane) consisted of minute aggregated particles which possessed double refraction, and had regular depolarizing axes.* The movement of sap in the Chara has been distinctly observed by Prof. Amici, of Modena. M. Blainville witnessed the phenomena also; and he observed that the microscope brought to view a movement of two liquid currents, the one ascending and the other descending, circulating in the same tube, without being separated by any partition which could insulate them. The nucules are found in a fossil state in marle. The Charæ are found carpeting the bottom of ditches and stagnant waters, and frequently yielding a very disagreeable odor. Trout and carp are said to arrive at a great size where these plants abound, feeding, perhaps, on

* Ed. Phil. Journ. Vol. ix. 194.

their fruit, and more generally on the insects which they necessarily harbor. Crypt. of England.

The plants which, under the microscope, exhibit a true and most remarkable circulation, are *Valisneria spiralis*, *Caulinia fragilis* of W.; *Hydrocharis*, &c.; Bull. des Sc. Nat. Ferus., xviii., 226; Mérat & De Lens, ii. 207; Payer's Botanique Cryptogamique, 1851. For a notice and review of the book, see Charleston Med. Journal and Review, Jan. 1851, where the reader will find a condensed account, by the Committee, of the researches of the most recent inquirers. The vegetable animalcules, or phytozoa, observed on these plants, according to the extended examinations of Thuret, move about in water, and suggest to us the ciliary motions of epithelial scales, and that of spermatozoa in man.

Chara vulgaris, L. By a chemical analysis of Chevallier and Lassaigne, an animal principle was demonstrated to exist in this plant. Journal de Pharm. iv. 152, 379, 460.

Tribe III. APHILLÆ (*or leafless, flowerless plants*).

Order 1. LICHENES.

Perennial plants, varying exceedingly in their form, appearance, and texture. No Lichen is ever submerged; and none are developed in mines, caverns, and places deprived of light. They have been remarked by Decandolle to possess two distinct classes of characters: the one rendering them fit for being employed as dyes, after maceration in urine; the other making them nutritive, and medicinally useful to man. M. Braconnot has ascertained that oxalate of lime, or oxalic acid, exists in great abundance in Lichens, particularly in those which are granular and crustaceous. The common variola, which is found upon almost every old beech tree, contains rather more than 29 per cent. (Ed. P. J. 13, 194). Lichens that grow on the summit of fir trees have been found by Dr. John, of Berlin, to contain an uncommon proportion of oxide of iron, which may be viewed as illustrative of the formation of iron by the vegetable process (Ib. 2, 394). The nutritive property depends upon the presence of an amylaceous substance analogous to gelatine. Lind., Nat. Syst. 329; Decand., Essai Méd. 318;

Agardh., Aph. 94; Supplem. Vol. to Mér. & De L., 431; Schunck, Prelim. Note on Lichens which furnish coloring matters, in Jour. de Pharm. 1206, 1842.

Endocarpon miniatus, Ach. *Lichen*, L.	A coloring matter is extracted from this plant, though inferior to that from the E. pustulatus, L. (Umbilicaria pustulata, Schrad.)

Lepraria chlorina. Used as a dye. Lind., Nat. Syst. Bot. 329.

Variolaria faginea, Pers. " *communis*, Ach. *Lichen fagineus*, Linn. *Pertussaria.*	Bitter-zoned Variolaria. Common on the bark of trees, especially of old beech (Northern States to Arctic America, Tuckerman).

The intensely bitter taste of this lichen distinguishes it from every species hitherto discovered. M. Braconnot detected in this and several other crustaceous lichens, oxalic acid; in the present plant in such abundance that 100 parts yielded 18 of lime, combined with 29.4 of oxalic acid; and nearly the same quantity in several other crustaceous lichens. And he remarks, that the oxalate of lime bears the same relation to the cryptogamia as carb. of lime to corals, and phosphate of lime to the bony structure of the more perfect animals. "It diminishes, however, gradually in the family of *lichens*, in proportion as the species lose their general crustaceous texture, and approach more and more to the membranous or cartilaginous, although the latter also contain a considerable quantity of salt." Edinb. N. Phil. Journ., v. 13, p. 193. "M. Braconnot strongly recommends the adoption of V. faginea in the production of oxalic acid, and an eminent French chemist now informs me that it is so employed in France, and upon a very extensive scale." Crypt. of England. The V. communis, Pertussaria communis of Ach., is found in S. C.! and in the Northern States. Tuck.; (H. W. R.)

Variolaria orcina. A coloring paste, *Orseille de Terre*, is made from this plant. From the recent analysis of M. Robiquet (Jour. de Chim. Méd. v. 324), among other active principles he found a sweet substance, which had the property of striking a beautiful red tint with ammonia. This able chemist proposes the name

Orcine for it. Another coloring matter is obtained from Lecanora parella, under the name *Parelle*, or Orseille d'Auvergne. A principle has been isolated from some of these called *variolarine*. M. Richard, Elements d'Hist. Nat. Méd. ii, 45.

Variolaria lactea, Pers. *Lichen lacteus*, Linn.	Used in dyeing. Lind., Nat. Syst. 329.

Urceolaria. *Lichen esculentus*, Pallas.	(Now a sub-section to Parmelia. H. W. R.)

In Russia, employed as fodder for cattle. M. & De L., Dict. de M. M.

Parmelia scruposa, Sommerfelt. *Urceolaria* " Ach. *Lichen scruposus*, Dicks.	Common urceolaria. N. States to Arctic America. Tuck.

Used in dyeing. Lind., Nat. Syst. 329.

Parmelia cinerea, Fries. *Urceolaria* " Ach.	Gray urceolaria. Northern States to Arct. America. Tuck.

Used in dyeing. Lind., Nat. Syst.

Parmelia coperatæ, Ach. *Lichen* "	Wrinkled sulphur lichen. N. S. to Arctic America. Tuck.

A plant under this name, Wade says, is useful to dye wool of an orange color. Plantæ Rariores, 135.

Lichen esculentus, Pall. (?) This plant, allied to the genus Lecanora, is found in the East as a sort of manna, and is used as bread. Eversmann, in Lichen Esculent, Pukasii (Act. Acad. Caes. Cop. XVII. ii. 530); Supplem. Vol. to M. & De Lens, Dict. de M. Méd. 428.

Lecanora tinctorius, Fee. It is supposed that cinnabar, or an analogous color, may be obtained from this plant, which is found in Brazil. M. Fee thinks it is the same with the *vegetable cochineal* analyzed by M. Vauquelin. (Ann. du Mus. vi. 145); (Ehr. iii. 579; M. & De L., Dict. de M. Méd. iv. 107.)

Parmelia tartarea, Ach. *Lecanora* " Ach. *Lichen Upsaliensis*, Linn. " *tartareus*, " " *frigidus*, Sw.	Tartareous Lecanora, or cudbear; on rocks. N. S. to British America. Tuck.

It is employed to make litmus, and to produce a purple for dyeing woolen yarn; "and nowhere, perhaps, used more extensively than in the manufactory of Mr. Macintosh, of Glasgow. This gentleman imports it largely from Norway, where it grows more abundantly than with us; yet, in the Highland districts, many an industrious peasant gets his living by scraping off the lichen with an iron hoop, and sending it to the Glasgow market." When I was in Fort Augustus, some years ago, remarks Mr. Hooper, I was informed that a person could make 14s. per week at this work, selling the material at 3s. 4d. the stone of 22 lbs. The fructified specimens are reckoned the best. Crypt. England; Pereira, M. Med. 45. The gatherers carefully choose such specimens as are of a firm, dense texture, and they never scrape the same rock oftener than once in five years. It is prepared for use with volatile alkali and alum. Engl. Botany, 5, 3, 156; Smith's Tour on the Continent, 198; Wade's Plantæ Rariores, 122.

Parmelia pallescens, Fries. *Lecanora parella*, Ach. *Lichen parellus*, Linn.	Crab's-eye lecanora, or perelle. Orseille de terre. Mountainous districts. N. S. and Northwards. Tuck.

In Auvergne, in France, it is extensively employed to produce a dye far superior to that of the *cudbear*, and quite equal to that of the *archill* (Rocella tinctoria). Crypt. Eng. 191; Lind., Nat. Syst. 329. It is macerated for ten to twelve days in urine, till it acquires a red or intense violet color, when it is formed into a cake. The taste is bitter and mucilaginous. M. Prost., Liste des Crypt. de la Lozère; M. & De Lens. The tinctorial paste is known as *Parelle*, or Orseille d'Auvergne; prepared with care, it is of a beautiful amaranth red tint, used with advantage, though it does not possess much fixity. See, also, Variolaria, M. Richard, Elems. d'Hist. Nat. Médicale, 1145; see work of Amoureux, of Montpelier, 1787; Tournefort's Eng. Bot. xi. 727. "Litmus is prepared from this species of lichen. For this purpose it is gathered from the rocks in the North of England, and sent to London." Withering, 5, 4, 16; Wade's Pl. Rariores, 121.

Lecanora Hæmatomma, Ach. } Blood-specked lecanora.
Lichen coccineus, Dicks. Cr. Fasc. } Rocks and brick walls.
Used in dyeing. Lind., Nat. Syst. 329.

Parmelia atra. } Black-shielded lecanora. N. S. and
Lecanora atra, Ach. } Northward. Tuck. S. C.! H. W. R.
Used in dyeing. Lind., Nat. Syst. Bot. 329.

Parmelia physodes, Ach. } Inflated parmelia. S. C.
Lichen " L. } H. W. R.
Used in Tartary as an application for the cure of recent injuries.

Parmelia Fahlunensis, Ach. } On rocks on mts. of England; Alpine rocks; White
Lichen " Linn. } and Green Mts. Tuck.
Said to be remarkable for its black color, and for furnishing a good vermilion tint. Merat & De Lens. iv. 99; Prost., Cat. des Pl. de la Lozère.

Parmelia encausta, Ach. Encaustic parmelia. Used in dyeing. Lind. The *P. conspersa* and *parietina* are employed for the same purpose; the latter is also astringent.

Parmelia parietina, Ach. } P. parietina Fr. S. C.! (H.
Lichen " Linn. } W. R.) and Northward.
Dr. Sander assures us that the powder of this species is more efficacious than quinine in the intermittent fevers of autumn, even in rebellious quartans. Journ. de Hufeland, 1806; Biblioth. Méd. 4, ix. 115. It has a taste like quinine, and an essential oil, which Gumprecht says is analogous to that of the Peruvian bark. Journ. de Pharm. v. 309. Scrhoder has given an analysis, which does not show any of the principles found in the febrifugal barks. Merat & De L., Dict. de M. Méd. iv. 104; Traité Chim. sur le Lichen des Murailles (in German); Journ. de Pharm. xx. 536, 1834.

Parmelia saxatilis, Ach. } Gray-stone parmelia. Trees,
Lichen " Linn. } rocks, and stones. N. States to
Arctic America. Tuck.
Used in Scotland to dye woolen stuffs of a dirty purple. Crypt. Eng. 199; Lind., Nat. Syst. 329. Merat says that this

plant is a monument of the credulity of man, inasmuch as some thought that it grew on the human head, and they attributed to it imaginary and superstitious virtues, under the name of Muscus Cranii Humani, etc. It was prescribed, among some of the old authors, to promote the growth of hair among the bald; so, also, Usnea plicatus was supposed to have the same power. Macerated in urine, it gives a red color; in vitriol, a brown tint is added. It is said that in Scotland more than two hundred persons are employed gathering it. Hoffman, de Vario Lichenum Usu, 27; Dict. de Mat. Médicale, iv. 107.

Parmelia omphalodes, Ach. } Purple rock parmelia.
Lichen " Linn. }
Used in dyeing. Lind., Nat. Syst.

Parmelia rotundatus, Rottl. This is employed in India as a restorative in fatigue, and as a liniment for the head. Ainslie, M. M. ii. 170; Merat & De Lens. iv. 107.

Sticta fuliginosa, Ach. } Sooty Sticta. On rocks and
Lichen fuliginosus, Dicks. } trees, in subalpine countries.
This, and the S. Sylvatica, Ach. have a remarkably fetid smell, which has been compared to that of the urine of mice. C. Eng.

Sticta pulmonaria, Ach. } Lungwort Sticta. Investing
Lichen pulmonarius, Linn. } trunks of trees, S. C., H. W. R.; Northward, Tuck.
A substitute for Cetraria islandica. Lind. 329. Also used in Siberia, for jaundice—for giving a bitter taste to beer. It dyes wool brown.

Collema nigrum, Ach. Inky Collema.
The genus Collema is gelatinous. This species forms ink-like stains upon the rocks on which it grows.

Collema fragraris, Ach. } Fragrant Collema. On trunks
Lichen " E. Bot. } of elms and ash.
This plant "is remarkable, when moistened, for its very sweet aromatic scent, not unlike the sp. vol. aromaticus of the apothe-

caries, though of course much fainter." Mr. Borrer noticed this in other species also. C. Eng.

Peltidea apthosa, Ach. *Lichen apthosus*, Linn.	Thrush Peltidea. Moist, shady Alpine rocks. *P. apthosa* of Hoffman, N. S. to Arctic Am. Tuck.

The Swedish peasants boil it in milk, as a cure for the apthæ, or thrush, in children. Crypt. Eng. An anthelmintic. Lind., Nat. Syst. 329. Willemet seldom failed to observe its power as a vermifuge, when given in doses of twelve grains, evening and morning, during six or eight days. Lichenog, i. 22. It is also said to possess some emetic effect. Mérat & De Lens' Dict. de Mat. Méd. iv. 98; Richard, Elements d'Hist. Nat. Méd. ii. 43.

Peltidea canina, Ach. Canine Peltidea. Upon the ground; on roofs of houses. P. canina, Hoff. In S. C. H. W. R. Northward, Tuck.

Formerly employed, at the suggestion of Dr. Mead, as a cure for the bite of a mad dog. Crypt. Eng. Pereira. It was used in England for this purpose, according to the Trans. Phil. Abrégés, ii. 26, 38. Also employed, Martins states, in Smolensk. Bull. des Sc. Méd. de Férus. xiii. 355; Sprengel, Hist. de la Med. v. 493. Zayyard classes it among the diuretics. Essai, en Allemand, sur les Morsures des Chiens Enragés, Leipsic, 1778; Mérat & De Lens' Dict. de M. Méd. iv. 99.

Gyrophora proboscidea and vellea. *Umbilicaria* " "	Mts. of N. Eng. and northwards. Tuck.

Found on granite, and constituting the Tripe de Roche of the Canadians, with *G. proboscidea*, *S. Vellea*, and a few other American ones. They supported Capt. Sir John Franklin and his brave companions in Arctic America, during a season of want such as, happily, few human beings have been subjected to. They are, however, bitter and nauseous, and can only be employed in the total absence of every other salutary food. Crypt. Eng.; also Lind., Nat. Syst.

Gyrophora cylindrica, Ach. *Lichen proboscideus*, Linn. *Umbilicaria crinita*, Hoffm. " *cylindrica.*	Fringed Gyrophora. Abundant on mountain rocks. British America. Tuck.

It is used in Iceland occasionally as food, and more frequently for dyeing woolen cloth of a brownish-green color. C. Eng.

Umbilicaria pustulata, Schrad. *Lichen* " Linn.	Blistered Lichen, Orseille de terre. On Mts. of S. C., Ga. H. W. R.

According to Linnæus, a beautiful red color may be prepared from it; and it may be converted into "an exceeding fine black paint." Wade's Plantæ Rariores, 136.

Umbilicaria Muhlenbergii.

Tripe de Roche was used by Sir John Franklin in his journey to the shores of the Polar Seas, and is "agreeable and nutritious."

Cetraria Islandica, Ach. *Lichen Islandicus*, Linn.	Iceland Cetraria. On the mountains of the North, both in the Old and New Continents; "abundant on the mountains and sandy plains of N. England." (U. S. Disp.) N. States. Tuck.

"In great request as a medicine in coughs, consumptions," &c. Immense quantities are gathered in Iceland, not only for sale, but for their own use as an article of common food. "The bitter and purgative quality being extracted by steeping in water, the lichen is dried, reduced to powder, and made into a cake, or boiled and eaten with milk. Crypt. Eng.

This plant is officinal in the U. S. Disp. Macerated in water it absorbs rather more than its own weight of the fluid, and if the water be warm, renders it bitter. Boiling water extracts all its soluble principles. The decoction thickens upon cooling, and acquires a gelatinous consistence. The dissolved matter is insoluble in cold water, alcohol, or ether; but soluble in boiling water, and in solution forming a blue compound with iodine. This principle has received the distinctive name of *lichenin*. Berzelius found in 100 parts of Iceland moss, 1.6 of chlorophylle, 3.0 of a peculiar bitter principle, 3.6 of uncrystallizable sugar, 3.7 of gum, 7.0 of the apotheme of extractive, 44.6 of the peculiar starch-like principle, 1.9 of the bilichenates of potassa and lime mixed with phosphate of lime, and 36.2 of amylaceous fibrin—the excess being 1-6 part. Traité de Chim. vi. 251. The name of *cetrarin* has been conferred on the bitter principle of Iceland moss. See Dr. Herberger's method of preparing it, U. S. Disp. 204; Journ. de Pharm. xxiii. 505. By this process one pound of moss yielded 133 grains of *cetrarin*. This principle is white and exceedingly

bitter, especially in alcoholic solution—absolute alcohol being its best solvent. Ether also dissolves it, and it is slightly soluble in water. It is precipitated by the acids, and rendered much more soluble by the alkalies. In the dose of two grains repeated every two hours, it has been used successfully in intermittent fever. Journ. de Pharm. *l. c.* Drs. Schnedermann and Knop have ascertained, that the cetrarin above referred to consists of three distinct substances, viz. *cetraric* acid, *lichstearic* acid, and *thallochlor*. Chem. Gazette, Jan. Feb. 1846; from Ann. der Pharm. iv. 144.

The gum and starch render it sufficiently nutritive to serve as food, the bitter principle having been freed by repeated maceration in water, one part of an alkaline carbonate being dissolved in 375 parts of the water, decanting and repeating the process. This process was suggested by Berzelius. U. S. Disp. 295; Pereira, ii. 41; Richard, Elms. d'Hist. Nat. Méd. ii. 1.

We will not extend these notices by including the information given by Mérat & De Lens in the Dict. de Mat. Méd. iv. 106, as the plant is so well known.

Iceland Moss, according to the U. S. Disp. is demulcent, nutritious, and tonic, and "well calculated for affections of the mucous membranes of the lungs and bowels, in which the local disease is associated with debility of the digestive organs, or the system generally;" also used in dyspepsia, chronic dysentery, and diarrhœa. It has, moreover, been given in the debility succeeding acute disease, or dependent on copious purulent discharge from external ulcers. But the complaint in the treatment of which it has acquired most reputation, is pulmonary consumption. It had long been employed in this disease, and in hæmoptysis, by the Danish physicians, before it became known to the profession at large. It was used extensively; but the cases in which it was supposed to have effected cures, are believed to have been nothing more than chronic bronchitis. The powder is sometimes given in the dose of thirty grains or a drachm; and a preparation at one time obtained some repute, in which the ground moss was incorporated with chocolate, and used at the morning and evening meal as an ordinary beverage. U. S. Disp.

Cetraria Glauca, Ach. *Lichen* " Linn.	N. States and Northwards. Tuck.

With alum and green vitriol it affords a carnation color. Prost., Cat. des Pl. de la Lozère; M. & De L.

Certraria nivalis, Ach. } Snow Cetraria. White Mts. and
Lichen " Linn. } Northwards.

This may be used as a substitute for the C. Islandica. Lind., Nat. Syst. 329. The powdered plant is said to act as a specific in hydrophobia. Mérat. & De L.

Rocella tinctoria, De Cand. } Dyer's Rocella. Rock moss,
Lichen rocella, Linn. } or archill. On maritime rocks.

"This interesting lichen is the famous archill, or orchill—Orseille of the French—which yields the most valuable dye of all this tribe." It derives its name from a Florentine family, one of whom, in 1300, carried on a considerable trade in it, and who first made known in Europe its valuable properties. The Canary Islands formerly yielded it, and it was called Canary weed. So great has been its consumption of late, that the best quality of it, whose average price is £200 the ton, has become extremely scarce; and what is commonly imported from other countries is not worth £30 the ton. "The English blue broadcloths are first dyed with archill, which gives their peculiar luster, and purple tint when viewed in a certain light." C. of England; Lind., Nat. Syst. 329. According to an analysis of Nees, it contains a brown resin, wax, glutinous matter, insoluble starch, gummy matter, lichenin, tartrate and oxalate of lime, and chlo. of sodium from the adherent sea-water. Dr. Kane, in the Phil. Trans., 1840, 273, has instituted a still more elaborate investigation. Among the products is a substance called rocelline. The coloring matter is *Erythrine*. Litmus was formerly procured from this plant. Blue orchill is procured by steeping the lichens in an ammoniacal liquor, in a covered wooden vessel. Red orchill is made with the same liquor in common earthen jars, placed in a room heated by steam. Pereira, M. M. ii. 42; Thompson's Org. Chem. 284; Nees and Ebermaier, Hand. i. 49. It was formerly an article of some commercial importance, was well known to the ancients (Pliny, xxvi. c. 10); the secret source of their purple dye was lost till, in 1300, a merchant of Florence discovered that urine communicated to the plant a beautiful violet color; the knowledge of this was confined to this country and to Holland. Bancroft on Philos. of Color, p. 282. M. Robiquet found in the plant a sweet substance susceptible of crystallization. Journ. de Pharm., xv., 298; M. & De L., Dict. de M. M. The tincture is employed to prevent the itching which exists in the throat in some coughs. Coxe's Am. Disp., 368. M. De Candolle says that in the Isle of

Mauritius they make with it a preparation for diseases of the kidney. Essai, 318; Morelot, Mem. de la Soc. de l'Emulation, 281; Richard, Elems. d'Hist. Nat. Méd.

Rocella Phycopsis, Ach.

This is abundant on the coast of Brittany, and may be employed in place of the *R. tinctoria*. Bory, Dict. Classiq. d'Hist. Nat. xiv. 630; and Botanique du Voyage en Morée, 310.

Rocella fuciformis, De Cand. Flat-leaved archill.

Inferior as a dye to the preceding. Lind., Nat. Syst.; Crypt. Eng.

Borrera furfuraceus, Ach. } Trunks and branches of
Lichen " Linn. } trees.

It is very bitter: it is regarded as a febrifuge, and is given in place of quinine. It furnishes an olive-green color. Prost. Cat. des Pl. de la Lozère; M. & De L. Dict. de M. Méd., 11, 99.

Evernia prunastri, Ach. } Ragged hoary evernica. Trunks
Lichen " Linn. } and branches of trees. N. S. and Northwards. Tuck.

This lichen was brought into use in Glasgow, by the late Ld. Dundonald, and employed, during the war, instead of gum, in calico printing, staining of paper, &c.; it afterwards fell into disuse as a very inferior substitute for that article. C. of Eng.; Nichol., Journ. 401. It is reputed to be astringent and febrifugal. Lind., Nat. Syst. In Egypt it is used to make bread rise, and to ferment beer. Dict. des Sc. Nat., viii., 519. Macerated with green vitriol it furnishes a color between brown and red. Prost., Liste des Pl. de la Lozère; Mérat & De Lens, iv. 105. "It has a remarkable property of imbibing and retaining odors, and is, therefore, the basis of many perfumed powders." Withering; Wade's Pl. Rariores; Demidoff, Extracts of a Voyage in Southern Russia, p 148 (in French).

Evernia vulpina. } Grows in Mts. Rocky Mts.
Lichen " Linn. } Tuck.

The *Borrera flavicans* of Ach. is the *L. vulp.* of Huds. According to Linnæus, the Norwegians mix this species with powdered glass, of which, with flesh of dead animals, they make a

cake to poison wolves. It has no other deleterious effect. Mérat & De Lens, Dict. de M. M., iv., 107. Wade states that it is supposed to dye woolen yellow. Plantæ Rariores, 130. M. Babert has extracted a substance from it which he calls *vulpine*. Journ. de Chim. Méd., vi., 696; M. and De L., Supplem. Vol. 1846, p. 430; Rochleder & Held, Researches upon some species of Lichen, in Annuaire de Chime, 1843; Knop., Chim. Phys. Res. upon Lichens, *ed.*, 449.

Ramalina scopulorum, Ach. and Hook., C. Eng. *Lichen calycaris*, Linn.	S. C. (H. W. R.) and Northw'ds. Tuck.

L. calycaris, Wade says, is reputed to dye a red color equal to the famous Lichen Rocella or orchill, which commanded at one time £1,000 a ton, and which was used to dye wool or silk any shade of purple or crimson. Lightfoot, in his Flora Scotica, asserts that *L. calycaris* was formerly used instead of starch to make hair powder. Plantæ Rariores, 132.

Ramalina fraxinea, Ach. *Lichen fraxineus*, Linn. Var. of *R. calycaris*, H.W.R.	Ash Ramalina. Abundant on the trunks, and especially on the large branches of very old trees.

This, as well as *R. scopulorum*, Ach., has been used in Glasgow, for the same purpose as *Evernia prunastri*. A variety is used in Teneriffe, for the production of a yellow color. M. & De L.

Usnea plicata, Ach. Used as a dye. Lind., Nat. Syst. Bot. 329. Macerated with alum, it gives a green color; with alum and tin, a reddish-yellow. Prost., Liste des Pl. Crypt. de la Lozère. The Laplanders place it under their feet when on a long journey; and they employ the powder to stop hemorrhages. Linn., Flora Lap. 348; M. & De Lens, iv. 105.

Alectoria jubata, Ach. *Lichen jubatus*, Linn. *Evernia jubata*, Fries.	Wiry Alectoria, or Rock Hair. Trunks of trees, especially firs; also upon rocks. White Mts. to Arctic Am. Tuck.

Linnæus tells us that in winter, when the snow is very deep

upon the ground, this lichen supplies the reindeer with food. It is used as a dye. Lind., Nat. Syst.

Alectoria usneoides.

This plant, from the gelatine it contains, will answer the place of the Iceland moss. Lind., Nat. Syst. 329.

Isidium Westringii, Ach.

Now considered a monstrosity, like Lepraria. (H. W. R.) Used in dyeing. Lind., Nat. Syst. 329.

Claydonia rangeferina, Hoffm. *Cenomyce* " Ach. *Lichen rangeferinus*, Linn.	Reindeer Claydonia, or Reindeer Moss. Moors, heaths, and mountains. S. C. (H. W. R.) and Northwards. Tuck.

Several species are employed as dyes. It is this which, for the greater part of the year, especially in winter, is the support of the vast herds of reindeer, wherein consist all the wealth of the Laplanders. It covers wide extent of countries; and these creatures can by penetrating the snow obtain their food. See Flora Lapponica, where Linnæus's beautiful description is given. Hooker's Eng. Flora. "M. Fee assures us," remarks Mérat, "that it may serve also as a nourishment for man, by depriving it of its bitter property by sufficient washing." Coms. d'Hist. Nat. Pharm. i. 177. And Fabricius, that the Icelanders make from it a nourishing jelly, by washing with water and cooking it with milk. Voyage, i. 99; M. & De L., Dict. de M. Méd. iv. 105.

Claydonia uncialis, Hooker, C. Eng. *Cenomyce* " Ach.	*C. uncialis*, Fr. N. C. and Canada. Tuck.

Macerated with quicklime and urine, it gives a gray color. Prost., Liste de la Pl. de la Lozère; M. & De L., Dict. de M. M. iv. 107.

Scyphophorus pyxidatus. *Claydonia pyxidata*, Schoer Lich. *Cenomice pyxidata*, Ach. Syn. *Helv. Spicil.*	Common Cup Lichen. Heathy places on moors and dry woods. S. Car., H. W. R., and N'd. Tuck.

Formerly employed by Willis as a remedy in whooping-cough. Crypt. Eng. Reputed to be astringent and febrifugal.

Pereira, M. Med. 45; Dillenius, Diss. de Lichene Pyxidat; Schlegel's Thesaurus Mat. Medicæ, i. 307, Leipsic, 1793. Van Voensel, a physician of St. Petersburgh, recounts its happy effects in that dry, irritable condition which is attended with a tickling sensation of the throat and lungs. Azconovieta approved of its use in this affection, and, with Dillenius, advised it in phthisis. The dose is from one to two drachms. Sprengel, Hist. de la Méd. v. 493; Cullen, Med. Pract. iii. 96; edition of 1819. Mérat observes that this plant, so easily obtained, is too much neglected. It furnishes a tincture of a green color. Prost., Dict. de Mat. Méd. iv. 105.

Scyphophorus cocciferus, Crypt. Eng. *Cenomyce coccifera*, Ach. *Claydonia* " Schaer. " *cornucopioides*, Fries.	Scarlet Cup Lichen. On mountains. N. S. and northwards. Tuck.

Reputed to be astringent and febrifugal. Lind., Nat. Syst. It has been given in convulsions and in rheumatism. Brukmann's Epistle, 57; M. Asconovieta, Obs. sobre el Muxus Pyxiodes Terrestris, ó *Lichen cocciferus*, L., en la pertussis. Mérat & De Lens' Dict. de M. Méd. iv. 99.

Order 2.—ALGÆ (Inarticulatæ).

Aquatic plants, with very few exceptions. The globules, in some genera, are enveloped in gelatine.

No cryptogamic plants have been more general objects of admiration and research; and if their value is to be estimated by the service that mankind derives from them, they will hold a high rank in the scale. Many are eaten in different parts of the world, especially in the North of Europe, and some are esteemed great delicacies. Cattle, at certain seasons of the year, repair to the shores at low tide, and devour the *sea-weeds* with great eagerness. From the marine *Algæ*, *Iodine*, a new principle, and possessed of very remarkable properties, is derived. It has been successfully employed in the cure of *goitres;* a disease which, Dr. Gillies informs us, has yielded, in South America, to the application of the stem of a certain *Fucus*, long before iodine was employed in civilized Europe. In the manufactory of Kelp, these same plants are of vast importance, and the value of land rose in Scotland (during the war on the continent, and when we were deprived of

the means of obtaining a pure alkali from the south of Europe) in a most extraordinary degree; so that the rocky boundary of our island yielded a great revenue to the different proprietors, and to our government, by the duty that was paid on the article produced. Crypt. Eng.

Acanthophora muscoides and *Gigantina helminthocorton* hold a place in the pharmacopœia as vermifuges. *Chondrus crispus* has been of late largely collected in Ireland, after it has lain and become bleached upon the beach, and is used very generally as a substitute for isinglass in making blanc-mange. The famous "*edible nests*" (the nest of the swallow called *Hirundo esculenta*) are said to be made from a species of sea-weed; and, lastly, we may mention that sea-weed is employed, to a vast extent, in the manuring of land in the vicinity of the coast, either thrown on fresh, or first laid in a heap to ferment and mixed with other vegetable manures. Crypt. Eng. Many fuci contain a gelatinous matter, and a sweet principle analogous to mannite. U. S. Disp., 1253; Dict. des Sc. Méd., xvii., 109.

Sargassum vulgare, Ag. Sp. Alg., 1. *Fucus natans*, Turn. Hist.	Common *Sargassum*. Found on the sea shores. Florida Keys; Harvey. Long Island; Bailey.

Mérat states that to the *F. natans* of L., lithontriptic and diuretic virtues have been attributed. Pison says it is very useful in pains, suppression of urine, nephritic colic, &c. Kalm reports that in America it is used as a febrifuge. In Spain, with vinegar, it is eaten as a condiment. D'Acosta recommended it in diseases of the bladder. Dict. de Mat. Méd., iii. 307; Dict. des Drogues.

Fucus serratus, Linn. Grev., Alg. Brit., p. 15. Serrated Fucus. Rocky sea shores; abundant. Spring and summer; not found on the American coast; W. H. H.

Lænnec having observed the comparative infrequency of phthisis on the shores of Bretagne, conceived the idea of creating a kind of factitious maritime air by the presence of these plants (Traité des Ausc. Médiate); but, though the experiment was made under his own eyes, it failed. Mérat & De Lens, Dict. de Mat. Méd., iii. 303. Vauquelin discovered in a number of the plants, mannite and a number of salts, in which hyd. of potash predominated. Mérat & De Lens, in Supplem. vol., 1846, and in the

Dict. des Sc. Méd., xvii. 125, express astonishment that more use is not made of the fucus abounding on the sea-coast, in making gelatine and as articles of food and commerce, as is done in China.

The fuci are among the most valuable of the tribes in the preparation of kelp. This species contains far less salt than *F. vesiculosus*, and is consequently much less esteemed for kelp. In Norway it is the food of cattle, sprinkled with a little meal, according to Gunner. The Dutch cover their crabs and lobsters with it, and say that it is preferable to *F. vesiculosus*, because the mucus from the vesicles of the latter ferments and soon becomes putrid. "It is employed as a manure, and with much benefit, though its value endures but for a single season. It is found peculiarly well adapted to potato culture, and when spread on the ground in winter yields an abundant crop of the very best hay. But if its application be deferred till the time of planting, the former produce, though equally abundant, is watery, ill-tasted, and unfit for the table, though it answers well enough for seed. This remark equally applies to all the Algæ, which, under the general name of *cart-wracks* are rolled ashore by the gales." Capt. Carmichael; Crypt. of Eng.; Turner's Synopsis of British Fuci, i. 1157. It constitutes a part of the fodder upon which cattle are supported in Norway. Grev., Algæ Brit., xix.; Lightfoot's Flora Scotica, ii. 903; Lind., Nat. Syst., 338. From the alkali obtained from this plant a soap is made, not much esteemed, on account of its hydro-sulphurous odor; it is, however, employed by glass-blowers. The Pacha of Tripoli is said to realize a large income from the sale of this plant. In Barbadoes they manure the land with it, in order to raise the sugar cane. Mérat & De Lens, iii. 307.

Fucus vesiculosus, Linn. Turn. Syn. Fuc., 117. " *Balticus*, *Agardh*, Svensk Bot.	Bladdered fucus, sea-wrack. Rocky shores; very abundant in Eur.; found also on our shores, from Greenland to N. York. W. H. Harvey.

This sea-weed is abundantly employed in the manufactory of

kelp, if it be not the best. But this, important as it is in a commercial point of view, is not the only end it serves. In the isles of Jura and Skye, it is frequently a winter food for cattle, which regularly come down to the shores at the receding of the tide to seek for it; and sometimes even the deer have been known to descend from the mountains to the seaside to feed upon this plant. Linnæus informs us that the inhabitants of Gothland, in Sweden, boil this fucus with water, and, mixing with it a little coarse meal or flour, feed their hogs upon it; for which reason they call the plant swintary; and in Scania, the poor cover their cottages with it, and use it for fuel. In Jura and some other Hebrides, the inhabitants dry their cheeses without salt, by covering them with the ashes of this plant, which abounds so much in that substance, that from five ounces of the ashes may be procured two and a-half of fixed alkaline salts, or half their own weight. Crypt. of Eng.

This plant is still retained by the Dublin College as officinal, and the U. S. Disp. left it out of its primary catalogue only through mistake. It has a peculiar odor, and a nauseous, saline taste. Several chemists have undertaken its analysis. It contains much soda in saline combination, and iodine, according to Gaultier de Claubry, Ann. Chim. xciii. in the state of iodide of potassium; also pectin and odorous oil. These ingredients remain in its ashes, and in the charcoal resulting from its exposure to heat in close vessels. This charcoal, which is sometimes called *Æthiops vegetabilis*, or *vegetable ethiops*, has long had the reputation of a deobstruent, and has been given in goitre and scrofulous swellings. Its virtues were formerly ascribed chiefly to the carb. of soda, in which it abounds; but since the discovery of the medical properties of iodine, this has been considered as its most active ingredient. The mucus contained in the vesicles was applied externally, with advantage, by Dr. Russell, as a resolvent in scrofulous tumors. He is of the opinion that it far exceeds burnt sponge, in virtue. Ann. de Chim. xxxv. and xxxix.; U. S. Disp. 1253; Lind., Nat. Syst. Bot. By treating the distilled water of this fucus with ether, a semi-solid, white oil is extracted, which is the odorous principle. Stackhouse, Dict. des Sc. Nat. xvii. 500; Guibourt, Dict. des Drogues, ii. 395; Pereira's Mat. Med. ii. 35; Russell's Diss. on the Use of Sea-Water, 1769, p. 41. Pliny states that this fucus was employed by the ancients in gout, and to calm inflammatory pains. Stetler says

the decoction is useful in arresting diarrhœa. Mérat & De Lens' Dict. de Mat. Méd. iii. 309; Forestus, Tract. de Venenis de Fucis, Leyde, 1606; Gmelin, Historia Fucorum, 1 vol., Petropoli, 1768; J. C. Collins, in Med. and Phys. Journal, upon the Medicinal Virtues of Marine Plants, xxxvi. 211, 1816; Dorbigni, Essai sur les plantes marines du Golfe de Gascogne (Mém. du Museum, vi. 165). If any injury is done to the leaves, abundance of young leaves spring from the injured part. "If even a small aperture be made in the middle of a leaf, a new one arises from either side of it." Withering; Wade's Pl. Rariores, 143.

Fucus nodosus, Linn. { Knotted Fucus, or Sea-Thistles. Rocky shores—common; scarcely found south of N. Jersey. (Harv.)

It is said, in the Hebrides, to be preferable to all other fuci in the manufacturing of kelp, and passes there under the name of *kelp-wrack*. Crypt. Eng. "Oysters are covered with it to keep them alive and moist." Wade's Pl. Rariores, 142.

Fucus canaliculatus, Linn.; Grev., Alg. Brit. 15.

Channeled Fucus. Abundant on rocks on the sea-shore; summer and autumn; not found on our coast. (Harvey.)

Capt. Carmichael states that cattle are exceedingly fond of this plant, and never fail to browse on it in winter, as soon as the tide leaves it within their reach. At this season it is peculiarly wholesome, as "counteracting the costiveness induced by their ordinary straw-commons."

Fucus amansii, Lam.

This is eaten in Madagascar.

Fucus bracteatus, Gmel.

Eaten in many parts of India with aromatics. Rumphius; Mérat & De Lens.

Fucus clathrus, Gmel.

According to Stetler, used as food in Asia.

Fucus coralloides, Poiret.

This is employed as an article of food in India. From the gelatine found in it, birds construct the nests which are so much

prized as a delicacy. See an interesting article in Mérat & De Lens' Dict. de Mat. Méd. ii. on the *Hirundo esculenta.*

Fucus dulcis, Gmel.

Used as food in Ireland and in Siberia. It is mashed up and rolled into cakes like tobacco. In the Isle of Skye, they employ the decoction as a sudorific in fevers. Mérat & De Lens' Dict. de Mat. Méd. iii. 305. This probably does not differ from *Iridæa edulis.*

Fucus tenax, Turner.

This species is very rich in gelatine. Much used in China for its extraction. Dict. des Sc. Méd. xvii. 125. Turner, sur la nouvelle espèce de Fucus,—*F. tenax*, Tourn.—qui se dissout en gelatine. Mérat & De Lens' Dict. de Mat. Méd. iii. 308.

Fucus tendo, Esp.

Mérat states that of all the fuci this is the one which has most strength, and which most deserves to be employed in making cordage. Dict. de Mat. Méd. iii. 308.

Fucus amylaceus. Ceylon Moss; Agar-Agar.

This has been introduced within a comparatively recent period into India and England, by M. Previté. It consists, according to Dr. O'Shaughnessy, of vegetable jelly, starch, ligneous fiber, gum, sulph. and mur. of soda, sulph. and phosp. of lime, wax, and iron! The decoction is an agreeable, light, and nourishing article of food. Dr. Crawford's Hist. Ind. Archipel. iii. 46; Pereira, Mat. Med. and Therap. ii. 38.

Himanthalia lorea, Lyngb. *Fucus*, Linn.	Rocky sea-shores—frequent; coast of N. A. (Agardh. Harv).

Valued in the manufacture of kelp. Grev. Alg. Brit. xix.

Alaria esculenta, Gr. Al. B't. p. 25. *Agarum esculentum*, Borry. *Fucus escul.* Lightfoot, Fl. Scot.	Esculent Alaria. Winter and spring; East Am. coast as far south as Cape Cod. (Harvey.)

In Scotland, it is known by the name of *bladder-locks*, and is eaten both by men and cattle; the former prefer the midrib, re-

jecting the more membranaceous portion. Crypt. Eng.; Grev. Algæ Brit. xix.; Lind., Nat. Syst. Mérat states that the *F. esculentus*, L. possesses sufficient gelatine to render it highly nutritious, and that it is used in Brittany, in Gascony, and in Siberia as an article of food. Dict. de Mat. Méd. iii. 305; Thunberg, iv. 61.

Laminaria buccinalis.

From the researches of M. Eclon, at the Cape of Good Hope, it contains more iodine than any European Algæ. Grev. Alg. Brit. The goitre-stick (Palo Coto), thought to be serviceable in South America, in goitre, is probably a species of this genus. Lind., Nat. Syst. from Grev.

Laminaria saccharina, Lamour. *Fucus saccharinus*, Linn.	Sugary Laminaria. Abundant on sea-shore on New Jersey coast. Harvey.

This well-known plant attains a length of many feet, and derives its specific name from its being, after having been steeped in fresh water and exposed to the sun, covered with a white efflorescence resembling sugar, but nauseous to the taste. It is not the "saccharine fucus" of the Icelander, as has been generally supposed. It is said, however, to be eaten in England by the poor, boiled as a pot-herb; but I know not whether this has been asserted by anyone besides Pallas. Thunberg tells us, that in Japan it is prepared in such a manner as to be quite esculent, and that it is customary there, when presents are made, to lay upon them a slice of this fucus attached to a piece of paper folded in a curious manner, and tied with threads of gold or silver. Cattle eat it not unfrequently. Crypt. Eng. Vauquelin found in it a matter analogous to mannite. Dr. Stackhouse says it contains six per cent. Mérat & De Lens, iii. 307. Cattle are said to feed on it and get fat; but their flesh acquires a bad flavor. Flora Scotica, ii. 942. Mr. Stackhouse says that when dry it forms an admirable hygrometer, and preserves its quality for years. Plantæ Rariores, 149.

Laminaria digitata, Lam. *Fucus digitatus*; Linn.	Tangle Sea-Girdles. Sea-shore, as far south as Cape Cod. (Olney and Harvey.)

This, and the *L. bulbosa*, are valued in making kelp. Mrs. Grif-

fiths examined one of the latter, which measured twelve feet in diameter. Crypt. Eng. 272, and Lind., Nat. Syst. 339; see Stackhouse's analysis. The young fronds are eaten in Scotland, and also employed as a manure. Turner's British Fuci; Wade's Plantæ Rariores, 149. As manures, the coriaceous fuci are preferable to the succulent. This plant contains six per cent. of mannite.

Laminaria bulbosa, Lam.
Fucus bulbosus, Huds.
" *polyschides*, Light.

Lightfoot observes, that this fucus has sometimes grown so large that a single specimen has been a load for a man's shoulders. Drs. Goodenough and Woodard mention that it grows "to a vast size—from one to five yards." In Cornwall, it is burnt to make kelp. Flora Scotica; Obs. on British Fuci; Linn., Trans. v. 3, 155; Wade's Plantæ Rariores, 152.

Laminaria potatorium

Furnishes the inhabitants of Australia with a proportion of their "instruments, vessels, and food." Grev., Algæ. Brit. xix.; Lind., Nat. Syst.

Durvillea utilis.

It constitutes an important resource to the poor on the west coast of South America. Grev., Essai.

Sporochnus villosus, Agard.
Conferva villosa, Huds.
Hairy Sporochnus. Marine rocks.

"Fresh specimens, when spread upon paper, render it transparent, as if it had been touched with oil; but in a short time this transparency disappears." Hassell, in Crypt. Eng.

Chorda filum, Lamour.
Scytosiphon, Ag. Sp. Alg.
Fucus, Linn.
Common Sea Whip-Lash. Abundant on shores of England. Common on northern shores. Harvey.

It constitutes a part of the fodder upon which cattle are supported in Norway. Grev. Alg. Brit. xix. Also used in the manufacture of kelp. Lind., Nat. Syst. Cordage is made of it.

Rhodymenia palmata, Grev. *Halymenia* " Ag. Sp. Alg. i. 204. *Delesseria* " Lamour. *Fucus palmatus*, Linn.	Larger Palmated Rhodomenia, or Dulse. Abundant on rocky shores of Great Britain in winter. Boston bay and Halifax. W.H.H.

This is the dulse of the Scotch, who are very fond of it in the fresh and crude state. Lightfoot says, however, that they prefer it dried and rolled up, when they chew it like tobacco, for the pleasure arising from the habit. This is the "saccharine fucus," or sol, of the Icelanders, the efflorescence of which has a sweetish and not disagreeable taste. It is dried by the natives, packed down in casks, and used as occasion requires, frequently cooked with butter. Cattle, sheep in particular, often eat this species with eagerness, whence it has been called *Fucus ovinus*. Crypt. Eng. It is also consumed in considerable quantities in the Grecian Archipelago. Grev., Algæ Britannicæ, xix.; Lind., Nat. Syst. Supposed to yield the largest quantity of kelp. Wade's Pl. Rariores, 167.

Rhodomenia ciliata, Grev. *Fucus ciliatus*, Huds.	Halifax harbor. W. H. H.

This is eatable.

Laurencia pinnatifida, Lam. *Chondria* " Alg. *Gelidium* " Lyngb.	Pinnatifid Laurencia. Rocks in the sea, *passim*. Monterey, Cal. W.H.H.

Distinguished for its pungency; it is often eaten in Scotland under the name "pepper-dulse." Grev., Alg. Brit. xix.; Lind., Nat. Syst. 338.

Plocamium coccineum, Lyngb. *Fucus Plocamium*, Gmelin.	Scarlet Plocamium; abundant on sea-coast. California. W. H. H.

Some antiquarians suppose that from this was extracted the famous Tyrian purple. Gmelin states that the young Kamtchadales employ it to make a red paint for the face. *F. laceratus*, *palmatus*, *alatus*, *plumosus*, *rubens*, and *sanguineous*, furnish coloring matter. M. & De Lens, iii. 306.

Gigartina Helminthocorton,		Grev.	Helminthocorton. Corsican moss.
Gracillana	"	Bot.	
Fucus	"	Bot.	
Sphærococcus	"	Ag.	

It has some reputation in Europe as an anthelmintic; having been used in Corsica for this purpose for several centuries. It is one of the ingredients in that mixture of marine plants which is sold in Europe under the name of *Corsican moss*, or helminthocorton. This is used in decoction, from four to six drachms being boiled in a pint of water, and a wine-glassful given three times a day. U. S. Disp., 1252. Eberle speaks favorably of it as a vermifuge. See Eb. on "Dis. of Children." Bouvier obtained, from one hundred parts of Corsican moss, veg. fiber and jelly, chlo. of sodium, sulph. andcarb. lime, iron, manganese, silica, and phosph. of lime. Ann. de Chim., ix. 83, 1791. Gaultier de Claubry and Straub have since detected iodine, but in small quantities. Mr. Farr found the decoct., after six or seven days, to act as a diuretic and diaphoretic, occasionally producing nausea and giddiness. In 1822 he brought it forward as a remedy in cancer, being led to try it from the circumstances of Napoleon's having stated to O'Meara that it was used in Corsica for dispersing tumors. Experience does not sustain its employment. Dr. Dohlhoff thinks it either has iodine or a hydriodate. M. & De L., iv. 498. It is often mixed with other crypt. plants. In powder, it is given in doses of a scruple to two drachms mixed with honey; but the decoction is the form preferred. Pereira's Mat. Med., v. 11; Bremser sur les vers intestin, 414. The favorable effect of the medicine in scirrhus is indicated by the green discoloration of the stools, accompanied by a notable amount of coagulable lymph. According to Dr. Stenhouse, it contains from 1 to 5 or 6 per cent. of mannite. Harvey's "Nereis Bor. Am."

We insert the following references obtained from M. & De L., Dict. de M. Méd. Fee, Cours. d'Hist. Nat. Pharm. i. 147; Révue Méd. ii. 515, xi. 468; Sprengel, Hist. de la Méd. v. 495; Méd. Eclairée par les Sc. Physiques, i. 86, 1791; Ann. de Chim. ix. 83; Schwendimann, Dis. Helminth. Hist. 1780; Latomette, Diss. Bot. sur le Mousse de Corse, Obs. sur la Physique, xxi. 166, 1782; De Cand., Bull. de la Facult. de Méd. i. 125, 1824; Bull. de la Soc. Philom. iii. 263; Farr, in Med. and Surg. Rev. 1822.

Gigartina compressa. } Vera Cruz. W.
Gracillaria, " Grev. Alg. Brit. } H. H.

Mr. Griffiths found it to be little inferior to the G. lichenoides, which is so much valued in Ceylon, in making pickles and preserves. Grev., Alg. Brit.; Lind., Nat. Syst. 338.

Gracillaria tenax, Grev., Alg. Brit. }
Fucus " Turn., Hist. Fucorum. }

This species, which Mr. Greville regrets is not British, is invaluable as a glue and varnish to the Chinese. Though a small plant, the quantity annually imported at Canton, from the provinces of Fokien and Tche-kiang, is stated by Mr. Turner to be about 27,000 lbs. It is sold at Canton for 6d. or 8d. per pound, and is used for the purposes to which we apply glue and gum arabic. The Chinese employ it chiefly in the manufacture of lanterns, to strengthen or varnish paper, and sometimes to thicken or give a gloss to silks or gauze. In addition to the above account from Mr. Turner, Mr. Neil remarks that it seems probable that this is the principal ingredient in the celebrated gummy matter called cinchon, or haitsai, in China and Japan. Windows, made merely of slips of bamboo crossed diagonally, have frequently their lozenge-shaped interstices.wholly filled with the transparent gluten of the Haitsai. Grev., Alg. Brit. xix.; Lind., Nat. Syst. Bot. 339. Recent travelers state that the G. spinosa yields the strongest cement.

Iridæa edulis, Bory. Much consumed in Scotland, and in the southwest of Eng. Grev. Alg. Brit.

Chondrus crispus, Lyngb. Grev. }
" *polymorphus*, Lamour. } Curled Chondrus. Carrageen or Irish moss.—
Fucus crispus, Linn. } Rocky shores; Atlantic coasts, British Am. to Long Island. W. H. H. Abundant on North Am. coast. Harvey.

It has been extensively collected on the coast of Ireland, washed, bleached, and employed for making blanc-mange, and for other purposes, in lieu of isinglass. It was at one time sold by peasants at $25 per pound, though now so common as to be reduced in price. Crypt. Eng. It is converted into size for the use

of house-painters. Grev., Alg. Brit.; Lind., Nat. Syst. Bot. 339. This plant was first introduced as a medicine by Mr. Todhunter, of Dublin. Reece's Monthly Gaz. of Health, 1831. And it has been analyzed by Her Verger Feuchtuanger. See Am. Journ. of Science and Arts, xxvi. It is found to contain jelly, mucus, two resins, fatty matter, and free acids, chlo. of sod., calcium, &c. no bromine, iodine, fungic, boletic, or lichenic acids.

It is a popular remedy for pulmonary complaints, chronic diarrhœa, and dysentery, irritation of bladder, etc.: a decoction is made. See Pereira's Mat. Med. ii. 36; Richard, Elems. d'Hist. Mat. Med. ii. 6.

Porphyra laciniata, Ag.
Alga " Lightf. Scot. 974 t. 33.
Ulva umbilicalis, E. Bot. 2296.
} Laciniated purple laver. In the sea, on rocks, stones, and wood.

This, under the name of *Laver*, is much eaten in many places, especially in the south of England, pickled with salt, and preserved in jars, and when brought to table, served up with lemon juice. According to Lightfoot, the inhabitants in the Western Isles gather it in the month of March, and after pounding and macerating it with a little water, eat it with pepper, vinegar, and butter. Others stew it with leeks and onions. Crypt. Eng.

Porphyra vulgaris. This also is "stewed and brought to our tables as a luxury." Grev., Algæ Brit. xix.; Lind., Nat Syst.

Chondrus Membranifolius, Grev.
Sphæricoccus " Ag.
This also contains a large proportion of the nutritive matter of *C. Crisp.* Richard, Elems. d'Hist. Nat. ii. 9.

Chondrus Pinnatifida.
This species is eatable. Richard.

Phyllophora rubens, Grev.
Sphæricoccus " Ag.
Contains gelatine and nutritive matter. Richard, Elemens.

Gelidium.
In Asia, several species are made use of to "render more pal-

atable the hot and biting condiments of the East." Some undetermined species of this genus also furnish the materials of which the edible swallow-nests are composed. It is remarked by Lamouroux, that three species of swallows construct edible nests, two of which builds at a distance from the sea-coast, and uses the seaweed only as a cement for other matters. The nests of the third are consequently most esteemed, and sold for their weight in gold. Greville, Algæ Britannicæ, xix. Lind., Nat. Syst.

Iridæa edulis,	Bory.		Esculent Iridæa.
Fucus "	Stach.		
Ulva "	De Cand.		

"It is eatable when raw, which is hardly the case with some other fuci. It is also eaten after being pinched with hot irons, and then tastes like roasted oysters." (Quoted in Plantæ Rariores, 154.) In the islands of the Archipelago, the natives have a curious way of dressing fish with the fucus: "They take slices of fish, and stew them with crow garlic, chopped small; when tender, some lard, or any animal fat, is added; and lastly, a handful or more of this fucus, called by them Marvei, is put on, which not only gives a most beautiful purple tinge to the ragout, but dissolves, and thickens the sauce so much, that, when cold, the jelly is strong enough to support a spoon or any other thing placed in a perpendicular direction." Gmelin's Hist. Fuc. 190; Nereis Britan. 59. Mr. Stackhouse discovered that by maceration in water it gave out a rich ruby tint, "resembling the strongest infusion of cochineal." The color had also the remarkable property of being a changeable color, as "it appeared a bright ruby when held to the light, and a muddy saffron when viewed in a contrary direction." The Rev. Mr. Gregor assured Mr. Turner that by means of alum he procured a fine lake from an infusion of it. Nereis Britan. 58. When moistened, after having been dried, this species of fucus more particularly exhales a violet scent. Withering's Eng. Botany, v. 19, 1307; Wade's Plantæ Rariores, 155.

Ulva lactuca, L.

Much eaten by Northern people, after having extracted the salt.

The same use is made of the *U. compressa*, *plicata*, *purpurea*,

umbilicalis, etc. (Journal de Pharm. xi. 40.) M. & De Lens, vi. 803.

Ulva latissima, Linn. Suec. *U. lactuca va. latissima*, Lightf.	Broad green laver. Abundant on rocks, stones, etc. in the sea. Summer and autumn.

This and the U. lactuca are indiscriminately eaten, under the name of *green Laver*, or *oyster green*, being served at table with lemon juice, in the same way as the *purple Laver*. "This diet is esteemed good, as almost all esculent vegetables are, for scrofulous habits." Lightfoot says, that the islanders ascribe to it an anodyne virtue, and bind it about the forehead and temples to assuage headache in fevers, and to procure sleep. Crypt. Eng.; Grev. Alg. Brit.

Enteromorpha intestinalis, Link.
Ulva, Linn.

According to Pallas (Voyage), this is employed in medicine.

ALGÆ. (*Confervoideæ.*)

Dasya coccinea, Ag.
Conferva " Wade's Pl. Rariores.

On account of its beauty, brilliant red color, and the minute divisions of its foliage, the conferva is employed by ladies to mimic landscapes. Wade, 168.

Polysiphonia atrorubescens, Grev. *Hutchinsia* " Ag. Sp. Alg.	Long Branch, N. Jersey, Miss Morris (W. H. H.).—Found on shores of England.

M. Guibourt says it contains a notable quantity of iodorine, combined with a proper substance, but not as an alkaline ioduret. It forms the base of the remedy so much used in goitre, and known as the Powder of Sency. Richard, Elems. d'Hist. Nat. Médicale, ii. 6.

Griffithsia setacea, Ag.
Conferva, Dill.

Mrs. Griffiths has observed, that on immersion in fresh water, "it twists the skin, bursts with a slight explosion, and emits the coloring matter, which sinks in fine powder." Miss Biddulph has

noticed a remarkable modification of the fruit. Crypt. of Eng. by Hooker. It affords a lake tint. Turner; Wade's Pl. Rariores.

Griffithsia corallina, Ag. } Greenport, L. I., Port Jefferson
Conferva " Dill. } and Key West. W. H. H.

Mérat & De Lens state that the infusion of C. corallina (Lour.), mixed with sugar, forms the cakes used in China and in Japan, as a restorative while traveling. Flore Cochinc. 848. In this it is supposed to resemble the fucus of the genus Gelidium, of which the celebrated *Tablettes* de Hokiac were made. ii. 383.

Conferva rivularis, L. { River Conferva. In streams and rivers; common.

M. Colladon, a pharmaceutist of Geneva, has employed this in the manufacture of paper. According to Murray, the confervæ emit a light similar to that of oxygen. He advises their administration in asthma and phthisis. Apparat. Med. v. 554; Lænnec employed some species of fucus for these purposes; they, however, contain iodine, which the confervæ do not. Pliny recommends them highly as an application to injuries and contusions of the body. Lib. xxvii. C. 9; Mérat, ii. 382.

Conferva setacea.

Mr. Turner observes, that it yields a fine lake fluid on being macerated in fresh water. Wade's Pl. Rariores, 165. This observer did not notice the intolerable odor which Major Velley says it emits when recent.

Conferva ægagropila, Linn. { Globe Conferva, or Moor Balls. In lakes.

This extraordinary production varies in diameter from half an inch to two and a-quarter inches, forming a compact green ball, which is said, in E. Bot. to be sometimes used for wiping pens upon. It was employed by Dr. Gall, in France, as an anthelmintic, and in scrofulous diseases. Mérat & De L., Dict. de Mat. Méd. ii. 383; Journ. de Pharm. ix. 423.

Conferva bulbosa.

Dillenius, in 1741, said that this conferva, properly collected

and dried, would answer as tow or cotton for a variety of purposes. Lightfoot, in 1777, states that he saw in Edinburgh a coarse kind of paper made of it. Wade's Pl. Rariores, 163.

Corallina officinalis, L. Halifax. W. H. H.

The discovery of the spores in this plant do not allow us any longer to doubt respecting its vegetable nature (Richard). By analysis of M. Bouvier, in Ann. de Chim. viii. 308, it was found to contain a notable quantity of gelatine and of albumen, and a very large proportion of carb. of lime, of magnesia, of sulph. of lime, and hydrochlorate of soda. The taste is disagreeable. It is sometimes prescribed as an anthelmintic. Richard, Elms. d'Hist. Nat. Médicale, ii. 9; Ann. de Nat. 1842; Ant. 119.

Calothrix luteola, Grev. Opaque Parasitical Calothrix.

Filaments exceedingly slender, tortuous, and tapering, of a snow-white color, and so opaque as to appear intensely black when viewed against the light. Most of them are variegated with pellucid fasciæ, caused by the destruction or escape of the coloring matter. In the water, this minute parasite gives a downy appearance to the plants on which it grows. Carm. MSS. Crypt. Eng.

Calothrix nivea, Ag. { White Calothrix. In sulphur springs; hot sulphur springs near Niagara. Har.

Dr. Dillon assures us "that this species is found below the spring no further than as the water retains sensible sulphureous qualities, as if the hepatic gas was necessary to its production and nourishment." Dill. Crypt. Eng.

Oscillatoria, Vauch.

Dr. Hooper cites Capt. Carmichael's ingenious remarks in his "Algæ Alpinensis," under *Oscillatoria*. "I have been induced to bestow considerable attention to the species which fell under my notice, on account of the singular motion remarked in the filaments by various naturalists; and I do confess that the result is something like conviction that they belong rather to the animal than to the vegetable kingdom. The motion or oscillation has been attributed to various causes—to the rapidity of growth, to the action of light, or to the agitation of the water in which

the specimens were immersed for inspection; but none of these afford a satisfactory explanation."* The *O. contexta* is an illustration of the above.

Chroólepus Arnottii, Hook. { Mr. Arnot's Chroólepus. On yews.

"This singular plant," remarks Mr. Arnot, "resembles none other that I know. It is found only on yew trees. The sap of the tree continues to flow through the plant, which also increases in size and thickness, at last becoming a firm, corky, almost hemispherical substance, * * * the number of concentric layers marking pretty nearly the number of years the specimen has been in forming. This, I have no doubt, is caused by the inspissation, at the close of each season, of the sap of the tree absorbed by the parasite. I may add that, when well dried, this species takes fire very readily from a spark, and burns like tinder." Arn. in Zitt.; Crypt. Eng.

* "The last," he adds, "may be put to the proof by a very simple contrivance. Let a small portion of the stratum be placed in a watch-glass nearly filled with water, and covered with a circular film of talc, so that its edge may touch the glass; the water will be rendered as fixed as if it was a piece of ice. The glass may now be placed under the microscope, and the oscillation of the filaments viewed without any risk of disturbance from the agitation of the water; by following this course it will be speedily perceived that the motion in question is entirely independent of that cause." "The action of light as a cause of motion cannot be directly disproved, because we cannot view our specimens in the dark; but indirectly there is nothing easier. If a watch-glass charged as above be laid aside for a night, it will be found that by next morning not only a considerable radiation has taken place, but that multitudes of the filaments have entirely escaped from the stratum; both indicating motion independent of light. Rapidity of growth will show itself in the prolongation of the filaments, but will not account for this oscillation to the right and left: and still less for their traveling in the course of a few hours to the distance of ten times their own length from the stratum. This last is a kind of motion unexampled, I believe, in the vegetable kingdom. There is another point in the natural history of the *Oscillatoriæ*, which favors the opinion that they are animalculæ. It is the extremely limited term of their existence,—the community, if I may so call it, lives for several months; but the individuals die off, and are succeeded by others with a rapidity to which there is no parallel among genuine plants. If a small portion of stratum, say one-fourth of an inch in diameter, be left for three or four days in a watch-glass filled with water, the whole area of the glass will be found covered with a thin transparent pellicle or incipient stratum, derived from the filaments that had successively radiated and died in the course of that short period." The *O. contexta* will illustrate the above.

ALGÆ. (*Gloiocladeæ.*)

Rivularia angulosa, Roth. *Ulva pruniformis*, Linn.	Attached to water-plants in ponds.

Pallas states, that in Siberia it is used in swellings of the limbs and in diseases of the eye. M. & De L.

Protococcus nivalis, Ag. Grev. Crypt. Flo. *Hæmatococcus Grevillii.* *Uredo nivalis*, Bauer. *Palmella nivalis*, Hook, in Paris' 2d Voy.	Crimson Protococcus, or red snow. In North America.

"On calcareous rocks, within the reach of occasional inundation," near Dublin. W. H. Harvey.

"This curious little plant, which, under the name of red snow, has excited no inconsiderable interest among the greatest botanists of the age, is usually found in this country under the form of a thin, stain-like stratum on the surface of rocks, or investing decayed vegetable substances with a purple crust. It was brought by Capt. Ross from the Arctic regions, where it was observed covering the surface of the snow, in patches of many miles in extent, and penetrating in some places to the depth of twelve feet." Crypt. Eng.

Seen by Mr. Agassiz on the glaciers of the Alps.

Palmella montana, Ag. Syst. *Ulva* " Lightf. *Palmella alpicola*, Lyngb. Hydroph. Dan. 69.	Mountain palmella.

According to Lightfoot, this is the "*Mountain Dulse*" of the Scotch; and "the Highlanders wash it and rub it between their hands in water, so as to make a paste, with which they purge their calves." Crypt. Eng.

Nostoch commune, Vauch. *Tremella nostoch*, Linn.	Common in gravelly soils.

This remarkable production, we are told, is a gelatinous matter of a yellowish green color, enveloped in a membrane, traversed by filaments, and springing up suddenly in wet weather. It loses its volume when dried, but may be made to recover it by the reapplication of water, resuming also its gelatiform aspect. The alchemists, Mérat & De Lens inform us, have written reveries without number concerning this singular production. Some

regarded it as an emanation, a residue left by the stars, and have attributed to it miraculous virtues, among others, a power in it to transmute metals to gold. They describe it under the names, *Throne of the Earth*, *Fleur de Soliel* and *Jaculum Stellæ*, *Realgar de l'Air*, etc. Mérat, in his Dict. de M. Méd., refers the curious to a paper by M. Vallot in the first volume of the Mém. de la Société Linneenne de Paris, p. 473. By chemical analyses, Vauquelin and Braconnot say that it contains, of water 185.00; of matter analogous to bassorine (cérasine) 13.80; of mucus, 1.20. By distillation it affords, a brown oil; an alkaline liquor, which holds the acetate and carbonate of ammonia; the incinerated residue gave phosphate and carbonate of lime. (Ann. de Chim. lxxxvii. 265, and xxxiv. 190.)

With respect to the medicinal virtues of the nostoch, according to Magnot it was much lauded during the end of the seventeenth century; if we believe the alchemist, it was supposed to cure all diseases. Paracelsus carried it in the head of his cane; yet he died in his 34th year. It was employed as a remedy for sores, for the most inveterate fistulæ, and to calm the pains of colic; also for cough, and in diseases of the kidney. In Siberia, it was used in inflammations, particularly those of the eye, swelling of the feet, &c. Mérat & De L., Dict. de M. M. iv. 636; Geoffroi, Obs. sur le Nostoch de Paracelse, qui prouvent que c'est réellement une plante (Mém. de l'Acad. des Sc. 1708); Reaumer, Obs. sur la Reg. du Nost. (Mém. de l'Acad. des Sc. 1722); Vernig, Mém. sur le Nost. (Nouv. Mém. de l'Acad. de Dijon, 1784); Corti, Obs. sur la plante appelée Tremella (Obs. sur la Phys. vii. 78, et Mém. de la Soc. d'Emulat. v. 515); Fontana, Lettres sur la Trem. (Obs. sur la Phys. vii. 328); Carradori, Mem. sulle transformazione del Nost., Florence, 1798 (Journ. de la Lit. Etrang. i. 242); Cassini, Doutes sur l'origine du Tremella, Nost. L. (Bull. de la Soc. Philomath. v. 81, 1817). See M. & De L.; Wade's Plantæ Rariores, 142; Smith's Tour on the Continent, v. 3, 150; Withering's Eng. Botany, v. 7, 461; Flora Scotica, v. 2, 199.

Algæ (*diatomaceæ*).

Schizonema Dillwynii, Ag. Syst.

The plant has a fetid odor, and frequently glistens with a faint metallic luster when dry. Crypt. Eng.

ORDER III. FUNGI (*The Mushroom Tribe*)

Plants consisting of *cells* and *fibers*, "always springing from organized and, generally, decaying substances, not perfected when immersed in water, bearing reproductive sporidea." Fungi occur of all colors, except pure green.

"Their qualities," remarks Mr. Berkeley, "are various; many are used very extensively as articles of food; a few are endowed with valuable medicinal properties; numbers are highly poisonous; and the ravages of several in dock-yards, corn-fields, orchards, &c. are incalculable. A few possess the remarkable property of exhaling hydrogen gas. Some, however, exhale carbonic acid gas, and inhale oxygen." Fries discovered 2,000 species within the compass of a square furlong, in Sweden.

Mr. Berkley, in his valuable description, says of the properties of this important order, that—"In this country (England) *Fungi* are so generally objects of prejudice and disgust, that their real importance, as useful productions, is little appreciated. With the exception of the common *mushroom*, scarcely a single species of *agaric* is in general accurately distinguished; and though many speak of another kind, under the name of *champignon*, there are few persons who know what to gather; and the fatal mistakes which have in consequence been made, have increased the disinclination to any but the *mushroom*. In many portions of Europe, but especially Poland and Russia, they form a most important part of the food of the common people; and in the latter country whole tribes are mainly supported by them, scarcely any species, except the dung and the fly *agarics*, being rejected. Even those kinds which are elsewhere refused by common consent, as poisonous on account of their extreme acridity, are taken with impunity, being extensively dried or pickled in salt or vinegar for winter use. It is probable that this harmlessness arises from the particular mode of preparation; for from the exact account of Pallas, and the general diffusion of various species in various countries, there is no reason to doubt the fact that sorts *justly esteemed poisonous are really used;* and it is well known that the noxious qualities of that most virulent species, *Agaricus vernus*, are communicated to brine, vinegar, &c., and that the *Olive-tree agaric* loses all its poisonous properties when salted, and becomes eatable. The pickle is, probably, in general thrown away; while as to dried fungi, I have been informed by a gentlemen of great acuteness and obser-

vation, that in some town of Poland, where he was detained as a prisoner, he amused himself with collecting and drying the various fungi which grew within its walls, amongst which were many commonly reputed dangerous; and that, to his great surprise, his whole collection was devoured by the soldiers. Indeed, two poisonous principles have been discovered in fungi, one of which is so fugacious that it is dispelled by heat, or the act of drying, or by immersion in acids, alkalies, or alchohol; the other is more fixed, and resists such processes. It is, however, the practice in some districts, to use *fungi* without any preparation whatever, as in their simple state they are considered more wholesome and nutritious. This practice is probably confined to kinds allied in their qualities to *Agaricus campestris*, and Schwaegrichen assures us, in a letter quoted by Person, that in consequence of seeing the peasants about Nuremberg eating raw *mushrooms*, seasoned with anise and carraway-seed, along with their black bread, he resolved to try their effect himself; and that during several weeks he ate nothing but bread and raw fungi, as *Boletus edulis*, *Agaricus campestris*, *Agaricus procerus*, &c., and drank nothing but water, when instead of finding his health affected, he rather experienced an increase of strength. A few species are recorded as used in the Southern hemisphere, and a kind of *Pachyma* is known in Van Diemen's Land by the name of "*native bread.*"

The medical uses of *fungi*, are probably of far greater importance than their present very limited application might lead us to suppose. Several which were formerly in high reputation for their active properties, are now altogether neglected or forgotten.

In the economy of the world, *Fungi* perform a most important office, in hastening the decomposition of dead organized matter. It is this property which renders one or two species, known under the common name of *dry rot*, such a dreadful plague in ships and buildings. The disease doubtless originates on some unsound portion of the wood, but, once established, it spreads with wonderful rapidity and decomposes the sound wood beneath it by absorbing its nutritive matter.

White of egg might probably be used to advantage, on a small scale as it seems, equally with corrosive sublimate, to prevent the growth of *fungi;* indeed, it is sometimes employed by housekeepers for the prevention of mold, by simply covering the articles to be preserved with paper steeped in it. In herbaria and

abinets, moldiness may be kept away by the use of essential oil or Russia leather.

Fungi are very destructive to corn, in the form of *blight*, *mildew*, *bunt*, &c., doing injury not only by a diminution of the quantity, but also of the nutritive matter; and, as in the case of bunt, by communicating to the corn an offensive taste and smell. The growth of these parasites depends so much upon accidental circumstances, that it is impossible for the most experienced cultivators to guard against them altogether; but the evil is greatly lessened by careful choice of seed, by steeping it in solutions of different substances, which destroy the vegetative power of the *sporidea* of these parasites, and by a judicious change of cropping on the land subject to them. It appears that the reproductive contents of the sporidea are absorbed, together with the water containing the nutritive matter of the soil, by the roots. At least, it is certain that corn sown in soil which has been purposely mixed with the sporidea, is infested with the fungi to which those sporidea belong; and this has been proved also with regard to one of the entophytal parasites to which roses are subject. Most plants are preyed upon by their peculiar parasites; pear-trees, for instance, are sometimes much injured by *Æcidium cancellatum*, and young trees planted in their neighborhood are observed to suffer.

The roots of certain plants, as *Saffron-crocus*, *Lucerne*, *Convolvulus batatus* (potato), are frequently exhausted by subterranean fungi. In the case of saffron, the only remedy is to insulate the infected spot by a deep trench; which should seem to be a striking proof that these plants are really increased by seed. M. J. Berkley on Fungi, in "Crypt. of England." We refer the reader to Kotzsch's excellent method of preserving fungi, on p. 10, vol. ii. which Sir Wm. Hooker has found very serviceable. Crypt. Eng.

According to Braconnot, most of the fungi contain a peculiar principle denominated *fungin*, a peculiar acid called *fungic* acid usually combined with potassa, and a peculiar saccharine matter less sweet than the other varieties of sugar, less soluble in alcohol and water than that of the cane, and distinguished by some writers as the *sugar of mushrooms*. *Fungin* constitutes the basis of these vegetables, and is the principle upon which their nutritive properties chiefly depend. It is the fleshy substance which remains when they are treated with boiling water, holding a little alkali in solution. It is whitish, soft, and insipid; inflammable;

insoluble in water, alcohol, ether, weak sulphuric acid, and weak solutions of potassa and soda; soluble in heated muriatic acid; decomposed by nitric acid, and by concentrated alkaline solutions; and converted, by destructive distillation, into substances resembling those which result from the distillation of animal matters. This subject was afterwards resumed by Letellier, who says he found in some of them one, in others two poisonous principles. One of these is an acrid matter, so fugacious that it disappears when the plant is either dried or boiled, or macerated in weak acids, alkalies, or alcohol. To this principle, he says, is owing the irritant properties of some fungi. The other principle is more fixed, as it resists drying, boiling, and the action of weak alkalies and acids. It is soluble in water, has neither smell nor taste, and forms crystallizable salts with acids; but he did not succeed in separating it in a state of purity. To this principle he attributes the narcotic properties of the fungi. He found it in *Am. muscaria*, *bulbosa*, and *verna;* and he therefore proposed to call it amanatine. Its effects on animals appear to resemble, considerably those of opium. Archiv. Gén. de Méd. xi. 94. Chausarel found that the poisonous principle resides in the juice, and not in the fleshy part, after it is well washed. Repert. für die Pharmacie, lxvi. 117; Christison on Poisons, p. 704.

The mode of action of the poisonous fungi has not been particularly examined; but the experiments of Paulet long ago established that they are poisonous to animals as well as to man. Traité des Champig. Coëffes. Mém. de la Soc. de Roy. de Méd. i. 431. The toxic or active principle, according to Mialhe, depends upon their power to coagulate the albumen of the blood, and hence to arrest the circulation. Mialhe, Essai sur l'Art de Formuler, ccxcix.; Supplem. 1846, to Dict. de M. Méd. 161. The symptoms produced by them in man are endless in variety, and fully substantiate the propriety of arranging them in the class of narcotico-acrid poisons. Sometimes they produce narcotic symptoms alone, sometimes only symptoms of irritation, but much more commonly both together. See *Agaricus campanulatus*, *A. procerus*, and *A. pantherinus;* also, *Hypophyllum sanguineum*. It is likewise not improbable that fungi, even those not belonging to the varieties commonly acknowledged as poisons, induce, when taken for a considerable length of time, a peculiar depraved state of the constitution, leading to external suppuration and gangrene. Christison on Poisons, p. 704.

Even the esculent mushrooms, if partially devoured and abandoned by insects, are avoided by some as having, in all probability, acquired injurious qualities which they do not usually possess; but this test I have often disregarded, remarks Christison ("On Poisons," p. 704). In cases of poisoning with the fungi, there is a great difference in the interval which elapses before the symptoms begin. Sometimes they commence in a few minutes, sometimes an interval of twelve hours has occurred. Gmelin has quoted a set of cases, seventeen in number, in which it was said to have been a day and a half. Their indigestibility, to which this has been attributed, is sometimes so great, that portions of them have been discharged by vomiting so late as fifty-two hours after they were swallowed. Aymen, in Hist. de la Soc. Roy. de Méd. i. 344. Another circumstance worthy of particular notice is the great durability of the symptoms. Even the purely narcotic effects have been known to last above two days; the symptoms of irritation have continued, as in the instance quoted from Orfila, about three weeks. Through idiosyncracy, some persons have been affected by the small portion of mushroom juice which is contained in an ordinary catsup seasoning. Christison.

In Rust's Journal, we have cases of persons having their systems depraved by living exclusively on mushrooms; a botanist, of Person's acquaintance, while studying the cryptogamous plants in the vicinity of Nuremberg, says he found that the peasants ate them raw, in large quantity, as their daily food: in imitation of their custom, he ate, for several weeks, nothing but bread and raw mushrooms—enjoying all the while perfect health. Person, Traité sur les Champ. Comestibles, 157.

The morbid appearances left in the bodies of persons poisoned by the deleterious fungi, have been but imperfectly collected. Christison details for us a few of these: The body is in general very livid, and the blood fluid; so much so, sometimes, that it flows from the natural openings in the dead body. Picco, Hist. de la Soc. p. 357. In general, the abdomen is distended with fetid air, which, indeed, is usually present during life. The stomach and intestines of some French soldiers who died of it (see *Ag. muscarius*) presented the appearance of inflammation, passing in some places to gangrene. In two of them the stomach was gangrenous in many places, and far advanced in putrefaction. The same appearances were found in the cases mentioned by Picco: in these there was also an excessive enlargement of the liver. The

lungs have sometimes been found gorged or even inflamed. The vessels of the brain are also sometimes very turgid. They were particularly so in a case related by Dr. Beck, where death was occasioned in seven hours by an infusion of the *Ag. muscaria* in milk. See *Ag. Muscaria*, apud auct. cit. sup.

M. Orfila, by experiments on dogs, found vinegar so efficient in dissolving out the active properties of some fungi as that they could be rendered innocuous by being dissolved in it. If, however, vinegar is swallowed together with portions of fungi, their poisonous influence is much increased. The common salt and sulphuric ether were all serviceable after the use of evacuants. Hoffman's anodyne was also very efficient. An emeto-cathartic should always be administered. The following prescription is advised:

℞. Ant. Tartarizat. grs. iii.
Ipecac. grs. xxiv.
Sulph. sodæ, grs. vi.

This to be followed by oil, and subsequently by ether. Milk has likewise been recommended.

M. Duchanoit thinks that among poisonous fungi, one kind act by stupefying, and the other by causing excessive pain. The use of the *Am. pseudo-aurantiaca* being followed by the first, and that of the *A. bulbosus* by the second. M. & De Lens' Dict. de M. M. ii. 202; Journ de Leroux, xvi. 376.

At Turin they cook mushrooms by adding iron, one or more nails being boiled with them (clous dans l'eau de cuisson); and we are assured that by these means no one is poisoned (Bonafons). M. Druge, of Vienna, recommends, for the poisoning by the mushrooms, a mixture of olive oil and pulverized charcoal. Bull. des Sc.Méd. de Feruss. xxiv. 97. M. Chansarel, of Bordeaux, states that tannin will deprive bad mushrooms of their poisonous power. Rev. Méd., Juin, 1839.

Some have observed certain agarics as peculiarly noxious to animals; also, that the poisonous properties change with the localities. For instance, in the middle of Europe many species are eaten; at Paris, the moselle and another species is eaten; in Perigord and Gascony, le cesse et l'orange are among the number of those employed; at Montpelier we may add four or five more, according to De Candolle; in Italy, Micheli states, they use as articles of food a great number. It has been remarked, that as we go north the poisoning by the mushroom becomes more fre-

quent, especially by the amanita verna (l'orange cigue), this being more abundant as we pass to colder regions. Mérat & De L., Supplem. vol. 1846, 162.

There are rules laid down by M. Richard, in the Dict. des Drogues, to guide those who eat mushrooms, in their selection of them. Those should be rejected which have a narcotic or fetid odor, or an acrid, bitter, or very acid taste; which occasion a sense of constriction in the throat, when swallowed; which are very soft, liquefying, changing color, and assuming a bluish tint upon being bruised; which exude a milky, acrid, and styptic juice; which grow in very moist places and upon putrifying substances; in fine, all such as have a coriaceous, ligneous, or corky consistence. The last, however, are injurious, in consequence rather of their indigestible than of their poisonous nature. Even mushrooms which are usually edible, may prove poisonous, if collected too late, or in places which are too moist. It is said, moreover, that the poisonous species sometimes become innocent when they grow under favorable circumstances; and that the most noxious may be rendered edible by boiling them in water acidulated with vinegar. Paulet, in 1776, says that salt and vinegar removed every deleterious principle from that poisonous species, the *Ag. bulbosus;* and that the Russians are in the habit of salting their fungi, which may be the cause of their harmlessness. So, the pickling and subsequent washing of the poisonous agaric of the olive renders it eatable, in the Cevennes. Delile; Lind., Nat. Syst. Both Pallas (Voyage, i. 65) and Orfila assure us that vinegar will destroy the noxious power of the most dangerous. Toxicologie, ii. 89. Mérat states that in many provinces of France, in portions of Europe, and particularly in Siberia, the inhabitants live almost exclusively on fungi. The plants, dried for winter use, become articles of considerable commercial importance. The remedies for poisoning by eating mushrooms are emetics, accompanied by the free use of warm drinks, and followed by cathartics. The strength must then be sustained by mild tonics and stimulants. Ether is particularly recommended. U. S. Disp. 1277; Mérat & De Lens. Chansarel found acids useless as a remedy, but he thought infusion of galls advantageous. Repert. für. die Pharmacie, lxvi. 117; Christison on Poisons; Lyall's Character of Russians, 556. 1823; Letellier, Journ. de Pharm. 1837; see art. of Mérat & De L. p. 201, vol. ii. for the chief characters of deleterious fungi.

"On certain persons, all mushrooms, even the very best of the eatable kinds, act more or less injuriously." They cause vomiting, diarrhœa, and colic. In this respect they are on the same footing with the richer sorts of fish, which, by idiosyncracy, act as poisons on particular constitutions. It is not improbable, Dr. Christison states, that, contrary to what some botanists have alleged, "the best mushrooms, when taken in large quantity and for a considerable length of time, are deleterious to every one." On Poisons, p. 703.

Foderé (*Méd. Legale*, iv. 55, *et passim*), De Candolle (*Essai sur les proprietes Méd. des Plantes*, 320), and Greville (Mem. Werner. Soc. iv. 342), have laid down general directions for distinguishing the esculent from the poisonous varieties; but it is extremely questionable, adds Christison, whether their rules are always safe; and that certainly they are not always accurate, as they would exclude many species in common use on the continent. "It appears that most fungi which have a warty cap, more especially fragments of a membrane adhering to their upper surfaces, are poisonous." Heavy fungi, which have an unpleasant odor, especially if they emerge from a *vulva*, or bag, are also generally hurtful. Of those which grow in woods and shady places a few are esculent, but most are unwholesome; and if moist on the surface, they should be avoided. All those which grow in tufts or clusters, from the trunks or stumps of trees, ought likewise to be shunned. "A sure test of poisonous fungi, is an astringent, styptic taste; and, perhaps, also a disagreeable, certainly a pungent, odor." Some fungi possessing these properties have, indeed, found their way to the epicure's table; but they are of a very questionable quality. Those whose substance become blue are invariably poisonous. Agarics of orange or rose-red color, and boleti which are coriaceous or corky, or which have a membranous collar round the stem, are also unsafe; but these rules are not universally applicable in other genera.

References to authorities respecting Fungi, from Mérat & De Lens' Dict. de Mat. Méd. etc.

L. Botal., Fungus Strangulatorius, Lugduni, 1565, in 16; Clusius, Fungi Perniciosi, in rar. plant. exot., Anteverpiæ, 1602; J. P. Breyne, De Fungis Officinalibus, Leydæ, 1702; Hatté, Obs. sur un empoisonnement par le champignon véneneux (*Agaricus bulbosus?*), et sur l'antidote de ce poison (le vinaigre), Anc. Journ.

de Méd. iii. 299, 1755; F. A. Cartheuser, Programmata I. et II. de fungorum venenatorum notis., Giessen, 1771; Dardana, (J. A.), Agaricum campestrem veneno in patria, etc., joint à l'ouvrage suivant;—V. Picco sur le traitement des accidens produits par les champignons véneneux (in Italian), Turin, 1788; Emmonot., Reflect. sur un Mémoire relatif aux effets dangereux des champignons, etc. (Journ. Génèr. de Méd. xxv. 241, 1806); Mager, Champignons comest. indigenes, Berlin, 1801, in fol.; J. Bussang, Obs. sur les mauvais effets des champ., Journ. Gén. de Méd. xxvi. 265, 1806; Gintrac, Obs. sur l'empoison. causé par les champ. vén., Bibliothéque Méd. lxiv. 86; E. Vadrot, Empois. par les Champ., Thèse, Paris, 1814, iii. iv.; Chauvin, Empois. par les Champ., Thèse, Paris, 1819, in 4; Vial, Empois. par les Champ. etc., Archiv. de Méd. v. 185, 1824; Cordier, Guide de l'Amateur de Champ. etc., Paris, 1826, in 18, fig.; Descourtilz, Des Champ. Comest. Suspect. et Vén., figures (tres mauvaises); Ascherson, De Fungis Venenatis, Berlin, 1827, in 8; Bull., Hist. des Champ. et des Pl. de la France, 12 vols., 500 figures, Paris, 1792; Krombholz, Icon. de Champ. comest., figures, Prague, 1829–41; Letellier, Figures des Champ. serv. de supplem. à Bulliard, 18 livres in fol., 1834–42; *Id*, Consid. sur les Champ. Vén. (Journ. de Pharm. xxiii. 369, 1837); Lenz, Sur les Champ. Utiles et Nuisibles, Gotha, 1831; Vittadini, Descrizione dei Fungi mangereccie, Milano, 1832; Viviani, Fungi d'Italia, 1834; Corda, Icon. Fungorum hujusque Cognitorum, Prague, 1836; Tripier, Note sur la présence de l'acide oxalique dans les Champ. (Journ. de Pharm. xxiv. 638); Culture des Champ. (Ann. des Soc. Roy. d'Horticult. xxxvi. 488. 1845). See M. & De Lens' Dict. de M. M. supplem. vol., 1846, 162.

Agaricus phalloides, Fr. " *bulbosus*, Bull. ii. 577. " *vernalis*, Bolt. i. 48. " *muscarius*, Sow. *Fungus phalloides*, Vaill. Bot. Par. 74.	Phallus-Like Agaric. Woods, and borders of woods; August to November; Carolina! to Penn.

When fresh it has a powerful, but not disagreeable smell; when past maturity, its odor becomes almost insupportable. Accounted highly poisonous, especially the yellow variety. Orfila administered portions of the *A. bulbosus* of Bull. to a dog. In six hours, it made efforts to vomit, became extremely weak, laid down and died with convulsive movement. Upon post-mortem

examination, the stomach was found full of a thick, yellow mucus. This organ and the duodenum, had livid spots on their coats. In a second experiment, two of the *A. bulbosus*, Bull. were given to a dog. These produced vomiting, trembling, and convulsive movements, accompanied with severe pain. In fact, all the symptoms of apoplexy declared themselves. The administration of vinegar did not relieve it permanently, and it died in thirty hours after the introduction of the poison. The digestive canal did not contain any of the plant, but the interior of the stomach was touched with red spots, the mucus and muscular coats of the intestinal canal were destroyed, and nothing remained except the serous tunic. A half-ounce being given to another dog produced true cholera and convulsions: the animal died twenty-four hours after taking the poison. The strong liquid produced by distillation of the plant, also destroyed dogs to which it was administered. The watery extract produced death in less than twenty-four hours. The tincture made by placing one plant in ℥ iss. of alcohol, was, likewise, equally destructive. See Paulet, Traité des Champignons (Trans. from Orfila).

In this, one of the most dangerous of the fungi, M. Vaquelin found a yellow, soft, fatty matter, acrid to the taste, in which appeared to preside the poisonous principle. Annal. de Chim. xxxv. 33, lxxv. 5, and lxxix. 265. Exposed to intense heat, it did not give out oxygen as other vegetables do, but azote and hydrogen; "thus confirming the almost animal nature of this species of production." M. & De L., Dict. de Mat. Méd. ii. 204.

Agaricus vaginatus, Bull.
" *pulvinatus*, Bolt.
" *plumbeus*, With.
} Sheathed Agaric. Woods and pastures; August to October; South Carolina! to Penn.

Eaten in Russia, but according to some accounts, poisonous. "The very base solid; not acrid, insipid; smell, scarcely any." Roques mentions, upon the authority of Decandolle, the two synonyms as including two varieties, which are very delicate, and which may be eaten with impunity. Hist. des Champs. Vén. 359. The same author says the *A. plumbeus*, Bull. is poisonous. Hist. des Champs. 199.

Agaricus ovoides, D. C. Fl. Fr. Supplem. 562.
Cocolla Bianca, Mich., Gen. Pl. 185.
}

This, and the *A. cæsareus*, "appear to be the best of all the esculent agarics." The flesh is white, and it has a fine, delicate

taste. It should be carefully distinguished from the poisonous amanita, which has the same color; but the latter is more pointed, slender, and it has a disagreeable, virulent odor. Roques.

Agaricus theiogallus, Bull.; Pers., Syn. } Penn., S. C.!
Lacturius " Fr. }

This was analyzed by Vanquelin, and found to contain constituents similar to those of *A. muscarius*, and is equally poisonous. It is saturated with a yellow and bitter juice.

Agaricus muscarius, L., Fl. Suec. } Fly Agaric, Amanita. "Woods, especially of fir and birch."
Amanita muscaria, Grev., S. C. Fl. 54. }

Sent to me from St. John's, S. C. by my friend, H. W. Ravenel, Esq.

This species derives its name from its killing flies, when dissolved in milk. It is highly narcotic, producing in small doses intoxication and delirium, for which purpose it is used in Kamtschatka; and in larger, death. Crypt. Eng. For a detailed account of its poisonous effects, see Roques' Hist. des Champs. p. 123; and for some curious particulars, a paper by Dr. Greville, in the 4th vol. *Wernerian* Trans.; also, this paper, *ante*, in introduction to the "Fungi." From the account of Dr. Langsdorff, as translated by Dr. Greville, it appears that the inhabitants of the northeastern part of Asia use this variety in the same manner as wine, brandy, arrack, opium, etc. are by other nations. They are collected in the hottest months, and hung up in the air by a string to dry; some dry of themselves on the ground, and are far more narcotic. The usual mode of taking the fungus is to roll it up like a bolus, and swallow it without chewing; which, the Kamschatdales say, would disorder the stomach. It is sometimes eaten fresh, in soups and sauces, and then loses much of its intoxicating property. When steeped in the juice of the *Vaccinium uliginosum*, its effects are those of strong wine. One large or two small fungi is a common dose, to produce a pleasant intoxication for a whole day, particularly if water be drunk after it, which augments the narcotic principle. The desired effect comes on from one to two hours after taking the fungus. Giddiness and drunkenness result in the same manner as from

wine or spirits: cheerful emotions of the mind are first produced, involuntary words and actions follow, and sometimes, at last, an entire loss of consciousness. It renders some remarkably active, and proves highly stimulant to muscular exertion; by too large a dose, violent spasmodic effects are produced. So very exciting to the nervous system, in many individuals, is this fungus, that the effects are often very ludicrous: a person under its influence wishing to step over a straw, takes a stride or a jump sufficient to clear the trunk of a tree; a talkative person cannot keep silence or secrets; and one fond of music is perpetually singing. The most singular effect of the amanita, is the influence it possesses over the urine. It is said that from time immemorial the inhabitants have known that the fungus imparts an intoxicating quality to that secretion, which continues for a considerable time after taking it. For instance, a man moderrately intoxicated to-day, will, by the next morning, have slept himself sober; but (as is the custom) by taking a tea-cupful of his urine, he will be more powerfully intoxicated than he was the preceding day. It is, therefore, not uncommon for confirmed drunkards to preserve their urine as a precious liquor, against a scarcity of the fungus. This intoxicating property of the urine is capable of being propagated; for every one who partakes of it has his urine similarly affected. Thus, with a very few amanitæ, a party of drunkards may keep up their debauch for a week. Dr. Langsdorff mentions, that by means of the second person taking the urine of the first, the third that of the second, and so on, the intoxication may be propagated through five individuals. Greville, 4th vol. Trans. Wernerian Soc. Edinb.; Lind., Nat. Syst. Bot.; Bougard, Lond. Med. Gazette, 1838, 414. Dr. Pouchet, of Rouen, seems to have clearly proved that the poisonous property of this and the *A. venenata*, "may be entirely removed by boiling them in water." A quart of water in which five plants had been boiled for fifteen minutes, killed a dog in eight hours; and again, another in a day; but the boiled fungi themselves had no effect at all on two other dogs; and a third, which had been fed for two months on little else than boiled amanitas, not only sustained no harm, but actually got fat on the fare (Journ. de Chim. Méd. 1839, 322). Pouchet is inclined to think that the whole poisonous plants of the family are similarly circumstanced. Roasting, we may add, had no effect in impairing the activity of the *Agaricus procerus* in the case observed by Dr.

Peddie. M. Letellier detected what he considers the poisonous principle in this, and in the *A. verna* and *bulbosa;* and he therefore calls it Amanatine. "Its effects on animals appear to resemble considerably those of opium" (Archives Gén. de Méd. xi. 94). Chansarel found that the poisonous principle resided in the juice, and not in the fleshy part after it is well washed. Several French soldiers in Russia eat a large quantity of the *A. muscaria*, which they had mistaken for *A. cæsarea.* Some were not taken ill for six hours and upwards. Four of them, who were very powerful men, thought themselves safe, because, while their companions were already suffering, they themselves felt perfectly well; and they refused to take emetics. In the evening, however, they began to complain of anxiety, a sense of suffocation, frequent fainting, burning thirst, and violent gripes. The pulse became small and irregular, and the body bedewed with cold sweat; the lineaments of the countenance were singularly changed, the nose and lips acquiring a violet tint; they trembled much; the body swelled; and a profuse, fetid diarrhœa supervened. The extremities soon became livid, and the pain of the abdomen intense; delirium ensued; and all four died (Courv., Journ. de Méd. xxxi. 323, from Vaudrot, Diss. Inaug. sur l'Empois. par les Champ). Several of their comrades were severely affected, but recovered. Two of these had weak pulse, tense and painful belly, partial cold sweats, fetid breath and stools. In the afternoon they became delirious, then comatose; and the coma lasted twenty-four hours. Christison, in citing these cases, remarks that the symptoms "deep narcotism and violent irritation," are more generally observed in cases of poisoning by the fungi. In a case related by Dr. Beck, where death was occasioned in seven hours by an infusion of the *Am. muscaria* in milk, the brain was found very turgid; the whole sinuses of the dura mater, as well as the arteries, were enormously distended with blood; the arachnoid and pia mater were of a scarlet color * *; lastly, a clot of blood as big as a bean was found in the cerebellum (Hist. de la Soc. &c. p. 357). Christison on Poisons, p. 709; Orfila, Traité des Poisons; and Leçons de Méd. Légale, pl. 14, fig. 1.

Orfila experimented on a dog with a variety of the *A. muscaria* of L. It produced trembling and weakness of the limbs, which continued for four hours; when the animal fell into a stupor, the respiration being slow and deep, and every now and then uttered plaintive cries. It would roll itself on the earth, and

occasionally shudder as if under the influence of electricity. For the space of eight hours it had no evacuation. The exhibition of vinegar and tartrate of antimony and potassa only increased the symptoms. After giving olive-oil, vomiting was induced, which brought up portions of the plant. The animal recovered (Trans. from Traité des Poisons, 429).

Mérat states that in a certain dose it is not fatal, since Bulliard said that he had eaten more than two ounces without injury. Dogs and cats, however, died after taking a quantity very little larger. M. & De L., Dict. de M. M. i. 219. Of course, climate may modify very much the quality of the plant. In higher latitudes a much less quantity proved injurious. It was supposed that the northern hordes, through its invigorating effect, were aided in their victories in the south of Europe (Murray, App. Med. v. 556). Reinhardt has employed the tinct. of this fungus as a powerful curative means for exfoliations of the skin; and he gave it internally, with success, in all obstinate cases attended with muco-purulent expectoration. It may be employed alone, or combined with powdered charcoal, in doses of thirty to forty drops, four times a day, in an appropriate vehicle. He advises that the lower part of the foot-stalk be used, gathered at the beginning of autumn (Bull. des Sc. Méd. de Férus. i. 365). M. Polet, surgeon at Erveux, has recently advised the use of the powdered plant for dressing cancerous ulcers (Journ. Analyt. de Méd. i. 542). This had been before pointed out by Murray (Apparat. Med. v. 555), in hard glandular tumors, fistulas, pustules on the cornea, to relieve the paroxysms of epilepsy, to lessen tremor, convulsions, &c. From a half-scruple to a half-drachm three times a day, or one drachm twice a day, in water or vinegar, may be used. If the powder causes too much pain upon the sores, it must be stopped. Mérat & De L., Dict. Univ. de M. Méd. i. 220. In the amanatine obtained by the analysis of Letellier (Journ. de Chim. Méd. iii. 41), of which the alkalinity was uncertain, it existed in combination with fungate of potash. This principle, in very small doses, proved to be a powerful narcotic poison. *Op. cit. sup.;* Fl. Suec. p. 450; Gruner de Virtutibus Agarici Muscarii, vulgo *Fliegen Schwamm*, tam in internis quam in externis; Dissert. respondit Whistling, Jenæ, 1778; Letellier, Essai sur les propriétes chim. et toxiques du poison des Agarics-à-volva, Thèse, Paris, 1826.

From the supplem. volume of the Dict. de M. M. 1846, we

learn that the plant possesses a remarkable power of coagulating albumen, which property is shared by ergot, and which, according to Malhe, renders them hemostatic,—p. 16. In the same work the writer mentions that he knew a number of soldiers, in the month of October, to eat it in the forest of St. Germain, without the least hesitation. They stated that in the middle of France they had constantly been in the habit of eating them (these were the *A. muscaria*, Pers.). See also, Dr. Beauvais' work entitled Effets Toxiques, etc., Paris, 1845: Paulet, Mem. de la Soc. Roy. de Méd. i. 473; Id. Mem. de l'Acad. des Sc., Paris, 1774; Georgi, Obs. sur l'Agaricus Musc., Leipsig, 1783; Vadroit, Obs. sur l'Empois. par les Champ., particulièrement par l'espèce appelée Fausse Orange, Paris, 1814.

We observe, however, that M. Roques says distinctly, that this plant has not its poisonous properties modified by any climate,—"*Il est vénéneux dans tous les pays.*" The Czar Alexis lost his life by eating this mushroom; and Toesel reports (Flora Prussica), that six Lithuanians suffered equally from its poisonous effects. The details of its effects upon the Kamtschatkans, by Krascheminikow, in his Natural History of that country, are explicit respecting the delirious intoxication induced by it; Gmelin and Pallas, also, equally certifying its intoxicating powers. Professor Vanquelin also obtained from this plant, by chemical analysis, many salts, and a heavy body in which resided its poisonous properties. It destroyed cats and dogs in a few hours, if they were not relieved. Bulliard states that dogs suffered more than cats. Roques, also, produced death in one of these by three of them. It was preceded by stupor and prostration, the vessels of the neck being also gorged with blood, and the stomach slightly inflamed. The acetate of ammonia is found to present the best means of relief. Roques reports seven different sets of observations respecting its deleterious effects on man.

Agaricus patherinus, Dec. " *muscarius*, v. 2, Purt.	Panther Agaric. Borders of woods; August to October; S. C.! to Penn.

A singular form of the narcotic effects of this fungus, is recorded in the *Annali Univ. de Medicina*, 1842, 549. It occurred in the case of a boy who had eaten it, near Bologna. In the course of two hours he was seized with delirium, a maniacal disposition to rave, and some convulsive movements. Ere long

these symptoms were succeeded by a state resembling coma, in every way, except that he looked as if he understood what was going on; and, in point of fact, really did so. He recovered speedily under the use of emetics. Christison on Poisons, 705.

Agaricus asper, Pers., Obs. Myc. i. 18. *Amanita muscarius*, v. 5, With. " *myoides*, Bolt. t. 139.	Rough-warted agaric. Woods; June, Oct. (*A. asp.* of Fr. N. Carolina. Linn.)

Odor strong; taste not unpleasant, though saltish. Poisonous, according to Roques' Hist. des Champs. Ven. 319.

Agaricus solitarius, Bull. 10, 593; Roques' Hist. 320; D. C. 560.

According to Bulliard, the taste is exquisite, and it is prepared in the usual way. Roques' Hist. 321.

Agaricus fulvo-albicans, R. Roque, 321. Grows in Sept., in shady woods.

The flesh is white, firm, and milky, and of a taste and odor which is not disagreeable; but as it sometimes grows near pernicious species, Roques advises us against it. Hist. de Champ. 322.

Agaricus cinereus, Roques' Hist. des Champs. 322. Grows in woods.

The flesh is white and friable; but Roques is inclined, from its taste, to suspect it. Hist. 322.

Agaricus rubescens, Pers. sub Am. " *pustulatus*, Schoepf. " *verucosus*, Curt. Fl. Lond. 312.	Chang'ble fleshed Fly Agaric. Woods, especially fir woods. Autumn. (*A. Rubes.* of Fries. N. Carolina to Penn.)

Smell strong, like that of mold; taste not pleasant, like that of a germinating walnut.

According to M. Cordier, it is much eaten in Lorraine, under the name of *Golmelle* or *Gobmotte vraie;* whereas, according to Roques, it is poisonous. Crypt. Eng. Roques does not say it is

poisonous, but cautions us against confounding it with the *A. asper*. Hist. des Champs. Vén. 320.

Agaricus procerus, Scop. Fl. Carn. " *colubrinus*, Bull. " *annulatus*, Bolt. t. 23.	Large shaggy Agaric. "Gardens, hedge-banks, pastures, and woods." S. Carolina! to Penn. July and Oct.

This plant was known among the Romans, and mentioned by Pliny. The taste is sweet, and odor pleasant. "Forming on the Continent a frequent article of food." Roques, Hist. des Champs. 120.

A remarkable set of cases of pure narcotism are related by Dr. Peddie. Half an hour after eating this plant, an elderly man and a boy of thirteen were attacked with giddiness and staggering, as if they were intoxicated; and in an hour they became insensible, the man, indeed, so much so, that for some time he could not be aroused by any means. Emetics having little effect, the stomach was cleared out by the pump, and powerful stimulants were employed, both inwardly and outwardly, by means of which sensibility was in some degree restored. Occasional convulsive spasms ensued, afterwards furious delirium, attended with frantic cries and vehement resistance to remedies, and followed by a state resembling delirium tremens. The pupil at first contracted, but afterwards dilated, as sensibility returned. In neither of the two instances was there any *pain* felt at any time, nor were the bowels affected. Another boy, who took a small quantity only, had no other symptom but giddiness, drowsiness, and debility. (Edinb. Med. & Surg. Journal, xlix. 192.) Christison on Poisons, p. 705. The above cases plainly show the possession of some narcotic property, when taken at certain seasons, that is, if Mr. Peddie was correct in the species. Roques does not intimate any inconvenience from eating this plant, and he gives various processes for serving it up.

Agaricus clypeolarious, Bull. 405, D. C. " *maleagris*, With. " *colubrinus*, Pers. Syn. 258.	Found in autumn in wet woods. S. C.! to Penn.

Its consistence is soft, and odor slightly agreeable. It is supposed to be poisonous by some, whilst others consider it eatable. M. Roques mentions that he has twice eaten a small quantity

without experiencing any bad effects. Hist. des Champs. Comest. et Vén. 302.

Agaricus melleus, Vahl. " *annularius*, Bull. & Roques' Hist. " *fusco pallidus*, Bolt. " *stipitis*, Sow. t. 101. " *polymices*,	Black-scaled Agaric. "Near or upon old stumps." Sept., Oct. S. C.! to Penn.

Odor agreeable; taste like that of *A. campestris*, with a slight degree of acidity, and sometimes acrid. Notwithstanding Trattinnick's assertion of its good qualities, and frequent use in Austria, in which he could scarcely be mistaken (Ess. Schw. 46), it appears that it has, by others, been found poisonous. See Grev., Sc. Crypt. Fl. *l. c.;* and Roques' Hist. des Champs.; Crypt. Eng.

Orfila cites it as among the poisonous species. Traité des Poisons, iv. 429; Leç. de Méd. Leg. 19, p. 1.

Roques says it has a disagreeable, styptic taste, and that, administered to animals, it causes an inflammation of the alimentary canal, and death. Hist. des Champs. Vén. 303.

Agaricus cerasinus, Berk. Laurel-scented Agaric. Oct.

Odor pleasant, exactly like that of the leaves of *Prunus lauro-cerasus*.

A. eurabescens seems to be the nearest to this species, which is remarkable for its pleasant smell of bitter-almonds. Crypt. Eng.

Agaricus eburneus, Bull. 118, D. C. " *nitens*, Sow. Fung. 39. " *lacteus*, Shaeff. Fung.	Ivory Agaric. Woods. Oct. (Eburneus of Buxb. N. Carolina.)

Inodorous, according to Bulliard; of a faint, pleasant odor, according to Sowerby; and, according to Roques, not disagreeable. Eaten in Italy under the name of *Jozzolo*. M. &. De L. *et auct.*

Agaricus nitens, Bauvoux (Ined.) Roques.

This, which Roques says may be confounded with the *A. nitens* of Bull. (*A. semiovatus* of Sowerby and Berk.), grows near the end of summer. It has an agreeable taste, and is eaten in some countries.

Agaricus murinus, N. Roques' Hist. 385.

This is remarkable for its grace and elegance. The *A. murinus* of Sowerby, Berkley says, turns to a beautiful verdigris green. (Crypt. Eng.) It is found in July and August, and has a nauseous odor. It has affinities with poisonous species, and is therefore to be suspected. Roques, 360.

Agaricus conicus, Picco. Mem. Soc. Med. 3; Roques, Hist. 361. (*A. conicus* of Scop. S. C.! to Penn.)

This bears some resemblance to the preceding. Dr. Picco, of Turin, has detailed some observations concerning its deleterious effects, which appeared in the Mém. de la Soc. Roy. de Méd. The substantial facts are, that a whole family were poisoned by a plate of them, with symptoms of spasm and vomiting of blood, resembling those we have detailed under *A. vernus*.

Agaricus russula, Pers. Syn. 338; Schoeff. 58; Roques, Hist. 269.

Roques, in cautioning us against confounding this with the *A. emeticus*, the head of which is red, but has no scales, states that it is agreeable to the taste.

Agaricus palomet. } Thore Chl. Land. 447; D. C., Fl. Fr.
" *virens.* } Supp. 525; Roques, Scop. Fl. Car. 437.
Grows in spring and autumn, in woods.

The flesh is white, fleshy, and of exquisite taste.

The following agarics are not arranged under any natural order.

Agaricus albellus, D. C. (non Schaeff.) Bull.

This is eaten in the northern provinces of France, and is much sought after by some amateurs. M. & De Lens, Dict. de M. Méd. p. 105. M. Roques gives a number of modes of preparing these mushrooms, 246.

Agaricus alborufus, Pers.

This is also eaten in France. M. & De L.

Agaricus attenuatus, D. C.

Eaten at Montpelier, according to De Candolle. Mérat, *op. cit.*, and Roques, Hist. des Champs. 304.

Agaricus auriculatus, Dubois, Fl. Or. 168.

Eaten near Orleans, in France. *Ibid.* It has a very agreeable taste, and dries easily. Roques.

Agaricus candicinus, Schaeff.

Used as food in Germany. Fung. i.; Mérat & De Lens. M. Roques cites *A. candic.* of Pers., *A. mutabilis*, Schaeff., as being eaten in Germany, though a species which resembles it is considered poisonous. Hist.

Agaricus virgineus, Wulf., Jacq. Misc.
" *enceus*, Bull.
" *niveus*, Schaeff.
} White field Agaric.

Eatable. M. & De Lens, Dict. de M. Méd. i. 107. The *A. virgineus* of Jacq., Miscel., *A. niveus* of Schaeff.; Roques cites it as being eatable. Considered a fine mushroom.

Agaricus eryngii, D. C., Fl. Fr.
Fungus " Mag., Bot. Montep. 103.

Its substance is firm and white; taste fine and delicate. This is eaten in many of the Provinces. M. &. De L., Dict. de M. Méd. i. 104. M. Masse says it is very much sought after for the table. Roques, Hist. des Champs. 260.

Agaricus illicinus, D. C.

It is eaten at Montpelier, in France. *Ibid. loc. citat.*, et Roques

Agaricus orcellus, Bull., Champ. t. 59 et 573.

This, according to Persoon, is eatable. *Ibid.*

Agaricus palomet, Thore.

Eaten in Gascony, in France. *Ibid.* i. 105.

Agaricus olearius, D. C., Fl. Fr.

According to Persoon, it is very poisonous. (Traité de Champ. Comest. 207.) M. & De Lens, Dict. de M. M. xi. 105 Micheli also considers it poisonous.

Agaricus aurantiacus, Bull., 120; Roques; D. C., Fl. Fr. 562. *Amanita aurantiaca*, Pers., Syn. 252. *Agaricus cæsareus*, All., Fl. Red. 339. " *speciosus*, Tourn., Fl. de Toul. 286. *Fungus orbicularis aureus*, Mich., Gen. Pl.	Orange Agaric. Found in end of Spring, in woods. Grows throughout Europe.

This plant, which does not correspond with the *A. aurantius* of the Crypt. Eng., is said by Roques, who devotes some attention to it, to have an exquisite taste and delicate perfume. He regards the Orange Agaric as the finest and most delicate of mushrooms. It was known among the Romans, under the name of Boletus. The Greeks also called them Bolites, and preferred them to all other mushrooms. The celebrated gastronome, Apicius (De Fungorum Apparatu), has traced in all its detail its mode of preparation; and Horace, Seneca, Juvenal, Pliny, Martial, and Suetonius, have mentioned it. Juvenal speaks thus of their preference:

> "Vilibus ancipites fungi ponentur amicis;
> Boletus domino."

Martial also alludes to it, thus:

> "Argentum atque aurum, lenamque, togamque,
> Mittere: boletus mittere difficile est."
>
> Ep. 48, 13.

> "Dic mihi quis furor est, turba spectante vocata,
> Solus boletus, Ceciliane, voras."
>
> Ep. 20, 1.

Nero called it *Cibus Deorum.*

This species should be distinguished from the *Amanita muscaria.* The former has a complete volva, whilst in the latter it is incomplete, and exhales a disagreeable odor, whilst in the *A. aurantiacus* it is agreeable. The poisonous species is spotted on the top, whilst the other is of a yellow orange color, without spots.

Roques advises us to be on our guard in selecting these plants, citing the instance of the Cardinal Caprara, who was poisoned by confounding them. Roques, Hist. des Champs. Comest. 344.

Agaricus purus, Pers. " *roseus*, Bull.	Rose Agaric. S. C.! and N. C.

According to Krapf (Champ. Comest.), it is extremely dangerous, neither boiling nor drying being sufficient to deprive it

of its deleterious properties. Paulet did not discover any sensible effect when experimenting with it. Mérat & De L., Dict. de M. Méd. i. 105; Willemet, Essai sur l'Histoire Nat. du Champ. Vulgaire; Nouv. Mém. de Dijon, 1783, 195.

It is distinguishable by its taste and odor, which is like that of radishes. Crypt. Eng.

Agaricus amethysteus, Bull. 570; Roques; Bolt. Fung. 63. " *laccatus*, Scop. Berk. Crypt. Eng. " *carneus*, Schaeff. 303.	Grows in Autumn.

The flesh is violet colored and slightly savory, and eatable.

Agaricus vernus, D. C., Fl. Fr. 565; Roques. " *bulbosus vernus*, Bull. Champ. 108. *Amanita bulbosa-alba*, Pers. Champ. 22.	*Agaric printanier*. Found more usually in August and Sep. in woods

Its resemblance to the edible mushrooms has been the cause of the most unfortunate results. It is white in every part, enveloped in a volva of the same color. The trace of a volva also distinguishes it from the edible species. The poisonous plant also exhales a disagreeable odor, and has an acrid taste, which is not observed in the edible. The *feuillets* of the poisonous plant are also always white, whilst those of the other are slightly rose or violet colored. All the varieties of the bulbous agaric of Bulliard contain a very deleterious fatty matter.

By experiments made upon animals, Paulet administered to a vigorous dog a patée of the (green) bulbous agaric in dose of three drachms. In six hours after, the animal exhibited the first effects of the poison, making efforts to vomit; the limbs became feeble, laid down, and, after some convulsive movements, died. The stomach and duodenum exhibited livid spots, and the whole intestinal canal was filled with thick and yellow mucus. The œsophagus and kidneys were in a natural state.

The *Agaricus citrinus*, administered in the same way, produced the same results. The juice, exhibited in dose of a half ounce in a little water, acted with more violence. The animal vomited with much effort, and with convulsive movements. After having a sort of cholera, it fell into a collapse, and died twenty four hours after the introduction of the poison. The distilled water

of the same mushrooms did not produce any serious consequences, but a small dose of the residue sufficed to poison two dogs. The aqueous extract also caused death. Water, in which many of these mushrooms were macerated, charged with the deleterious principle, produced bloody evacuations; but the animal did not die. Alcohol, ether, vinegar, wine, and salt and water, had the property of dissolving the poisonous matter; these different liquids acquiring thus a very intense deleterious action, and causing death in animals in less than twenty-four hours. The facts contained in the work of Paulet, and in certain scientific reviews, prove that the influence of these plants upon man is not less dangerous.

M. Guibert, his wife, her daughter, two boys, and a domestic, eat at dinner a quantity of the *citrine amanita.* About three hours after, Madame G. was prostrated by its effects, suffered from nausea, vomiting, and continued sleepiness. Upon taking an emetic she vomited portions of the mushroom, and was relieved, though it was several hours before she entirely recovered. M. Guibert himself was attacked by a severe cholera morbus, and very painful cramps. There was no fever in either of these cases. All except M. Guibert were in a stupified state. The daughter and the boys, who had refused the emetic, died. A cat, which had also eaten some portion, almost died from the effects.

Observation 2d. M. Benoit, his wife, her daughter and infant, eat, at six o'clock in the evening, of the *Amanita printanier* (*Agaric vénéneux* of Roques), which were gathered in the woods near Boulogne. On the next day they suffered from nausea, anxiety, and frequent faintings. On giving to the father and the child milk, ether, and a strong dose of an emetic, abundant vomiting was induced. They were upon the point of giving the same to the mother, when she suffered from a flow of blood and continued prostration. The child was nearly dead when Dr. Paulet arrived. The father was found in a state of permanent anxiety and stupor; his stomach was tense, extremities cold, and pulse weak and intermitting. His whole body was livid, and he died a few minutes after. The mother vomited abundantly; her complexion was pale and cadaverous, and there was constant weakness and anxiety. Upon giving an ordinary purgative, after two or three hours she evacuated portions of the plant, and an abundance of yellow mucus. She took the milk with orange-flower water and a few drops of ether, which gave much relief. The

next day she was purged, and the uterine flow was arrested. There was weakness and oppression existing for some time, and she suffered from pains in the head and stomach for six months.

There are other cases related by Paulet, and in the "Gazette de Santé," 1777, in which there was also stupor and dilatation of the pupil, all being much benefited by the purgative treatment. Roques believes that the indication is to relieve the gastro-intestinal inflammation by leeching, mucilaginous and oily drinks and topical demulcents. Roques, Hist. des Champs. 354.

Agaricus candidus, Briganti, Fung. Icon.
Amanita candida, Roques, Hist. des Champs. 355.

Prof. Briganti relates that a number of natives of Naples who ate of this, suffered from violent cardialgia, and vain efforts to vomit. They had vertigo, and respired with difficulty. These symptoms increased to such an extent as to threaten death, which was only prevented by vomiting. Roques, Hist. des Champs. 357.

Agaricus pusillus, D. C., Fl. Fr. Roques, Hist.
" *volvaceus minor*, Bull. 330.
Amanita pusilla, Pers.
Grows in N. C.

This beautiful little mushroom, found in woods and gardens, approaches so near to poisonous species, as to induce us to exclude it from the list of edible ones. Roques, Hist. 357.

Agaricus leiocephalus, D. C., Fl. Fr. Supp. 564; Roques, Hist. 357.

This beautiful species has a firm, white flesh and very agreeable taste and odor, and is much approved of as an article of food. Roques, Hist. des Champs. Vén. 358.

Agaricus citrinus, Cher., Fl. Par. 125, Roq.
Amanita citrina, Pers., Champ. ii. 1.
Grows in autumn, in woods.

The flesh is white and of a strong odor. A small dose will excite vomiting in animals. A cat to which Roques gave a drachm, had spasms and vomiting; another which took a larger dose, died in convulsions. Hist. des Champs. Vén. 349.

Agaricus maleficus (N.), Roques, 361.

For observations respecting this doubtful species, see Roques' Hist. des Champs. Ven. 361.

Agaricus aromaticus, Sow. Aromatic Agaric.

"Whole plant, when fresh, so tender that it is difficult to gather. Odor agreeably spicy; taste watery, with a peppermint-like coolness in the mouth, and a lasting roughness in the throat." Sowerby. The *A. aromaticus* of N., Roques says, has a fine taste, and is by some preferred to truffles. Hist. des Champs. 256.

Agaricus semiglobatus, Bat., Cont. 110; Pers., Syn. 407; R. 205.
" *glutinosus*, Curt., Fl. Lond. 205.
" *virosus*, Sow.

Hemispherical Agaric. Rich meadows and dunghills; May and November; S. C.! to Penn.

According to Sowerby, this species is injurious. Prof. de Candolle places all the coprins among the poisonous fungi. Their tenuity, their rapid alteration, sweetish, and sometimes acrid taste, is sufficient to proscribe them. Roques, Hist. des Champs. Ven. 207.

Agaricus albo-brunneus, Pers.
" *striatus*, Schoeff.
" *glutinosus*, Bull.
" *viscosus*, Purt. 3, 208.

White and Brown Agaric. In clusters on the ground, and on stumps; November.

Remarkably glutinous. Bulliard describes his plant as having no unpleasant taste nor smell; and Fries, in his *Obs. Myc.* confirms this, and suspects that it may be eatable. Persoon, on the contrary, who describes four states, pronounces all more or less bitter and acrid. Crypt. Eng.

Agaricus castaneus, Bull., Champ. 268; Pers., Syn. 298; Roques, Hist. 292. Common in woods, in spring and autumn; S. C. to Penn.

It has the taste of a good mushroom, and is eaten in Italy.

Agaricus hæmatochelis, Bull., Champ. 596; Roques, D. C. Fl. Fr. 535. Grows in spring and autumn, in dry woods.

It has a slightly sapid taste, and nothing which would announce injurious properties. Roques, Hist. 293.

Agaricus rutilans, Schoeff. Crimson-red, Downy Agaric. Odor strong, disagreeable; taste bitter, nauseous.

Agaricus sanguineus.
Orfila cites this among the poisonous species.

Agaricus personatus, Fries. " *bulbosus*, Huds., Fl. Ang. " *violaceus*, Sow., 209.	Variable, Blue-stem'd Agaric. Pastures, Oct. Jan.; S. C.! and N. C.

Sold, according to Sowerby, in Covent Garden Market under the name of *Blewitts*. Crypt. Eng. Orfila, under Amanita and *Agaricus bulbosus*, describes several poisonous species.

Agaricus violaceus, Linn., Fl. Suec. 448; Bull., 598; Roques, Hist. 291. " *hercynicus*, Pers., Syn. 278.	

Found in autumn, in woods; N. C. to Penn. H. W. R., Schw.

Flesh is white, tinged with violet, and of a sufficiently agreeable taste, but odor rather strong. Roques does not hesitate to place it among the edible species. Micheli says it is eaten in Tuscany. Roques, Hist. des Champs, 292.

Agaricus alutaceus, Pers., Syn. " *pectinaceus*, Bull. " *auratus*, With. " *campanulatus*, Pers.	Buff-gilled Agaric. Woods, July and October; S. Carolina! to Penn. H. W. R.

Taste mild, pleasant, acrid when old. "By common consent pronounced esculent; but individual specimens occur which prove almost as acrid as *A. emeticus*." Crypt. Eng.

Christison cites from the Lond. Med. and Phys. Journ. xxxvi. 451, as a good instance of pure narcotism, the following case: A man gathered in Hyde Park a considerable number of the *Ag. campanulatus*, by mistake for the *A. campestris*, stewed them, and proceeded to eat them; but before ending his repast, and not above ten minutes after he began it, he was suddenly attacked with dimness of vision, giddiness, debility, trembling, and loss of recollection. In a short time he recovered so far as to be able to go in search of assistance; but he had hardly walked 250 yards when his memory again failed him, and he lost his way. His countenance expressed anxiety, he reeled about, and could hardly articulate. The pulse was slow and feeble. He soon became so drowsy that he could be kept awake only by constant drugging. Vomiting was then induced by sulph. zinc; the

drowsiness gradually went off, and next day he complained merely of languor and weakness. On Poisons, p. 705. The case would be more instructive if we could rely upon the identity of the plant; for the *A. campan.* of Schoeff. is also synonymous with the *A. hypnorum* of Schrank., while that of With. is identical with the *A. striatus*, Bull.; the latter, however, is oftenest found growing in meadows.

Roques considers *A. campan.* Pers. a variety. He says, they are eatable, but care should be taken not to confound them with the emetic agaric. The edible can easily be distinguished by the possession of gills which are always white, while the poisonous have yellow. Hist. des Champs. Ven. 175.

Orfila cites the *A. campanulatus*, in general terms, as poisonous.

Agaricus emeticus, Schoeff. " *pectinaceus*, Bull.	Common-gilled Agaric. Very common—woods; July and December; S. C., H. W. R.; all the varieties are poisonous.

A case of poisoning by this species, is related in the Journ. de Chim. Méd. x. 241. Three persons died from eating it gathered in the woods at Vincennes. The *A. bulbosus* could, however, be gathered in the same neighborhood. M. & De Lens' Dict. de M. M. Supplem. 1846, 16.

When taken into the throat it imparts a burning sensation, which lasts for some time, but which is dissipated by gargles of fresh water. Krapf has made experiments upon himself with the *A. emeticus* of Pers., by which he ran great risk; escaping with his life only by means of an emetic and the use of fresh water. According to this naturalist, oil and vinegar augmented its acridity.

The experiments made by Paulet upon animals, were very contradictory, as many of these plants have no sensible effects. M. Roques, in order to ascertain positively what power the plant possesses, so that he selected the one best known. After ascertaining its acridity by tasting, he swallowed a bit the size of a five-franc piece,—having first prepared four grains of tartar emetic, in two parcels. After an hour he commenced to experience pains in the stomach, followed by some nausea. Upon taking a cupful of water they became sharper, and the nausea was also increased; but, the bit of mushroom not being large, he hoped to avoid taking the emetic, trying to excite vomiting by placing

the fingers down the throat. In a word, he succeeded in vomiting up the morsel. After swallowing some water he threw up bilious matter, and subsequently experienced a trembling sensation in the lower extremities, which was owing to the efforts made to vomit. Though he does not consider that he ran much danger, yet he is now convinced that Paulet must have made his experiments with plants with yellow gills, or that men possess a sensibility differing from that of other animals. The emetic agaric with a red head, is the most poisonous. Three Italians, one aged thirty-one, the other fourteen, and the third a little girl of eight, having eaten, in Sept. 1826, of these mushrooms, called in their country rossola, the signs of poisoning manifested themselves in the two first in half an hour; in the infant it was more slow, but exhibited itself with more violence. The phenomena were characterized by vertigo, constant nausea, vomiting of bilious matter, with portions of the plant. There was ardent thirst, cough, painful spasm in the epigastric region, weakness, constipation, a cold feeling over the body, especially in the extremities, and lastly, weakness and irregularity of pulse. Dr. Larber, who saw the cases, administered an emetic in small, repeated doses, then purgatives and small quantities of ammoniacal stimulants. This was beneficial to the two first, but the child, in whom the bad symptoms declared themselves twenty-four hours after eating the mushroom, received no relief; it died the next day (Larber, *Sui Fungi* Saggio Generale, tom. i. 89). In order to distinguish the poisonous species from the good, we observe that in the latter the gills are yellow and always equal; in the bad they are white, and unequal in length. The emetic agaric have also an acrid, burning taste, while that of the eatable species is pleasant. Roques, Hist. des Champs. Vén. et Comest, 179.

Agaricus sanguineus, Bull., 42; Roques. " *ruber*, D. C. Fl. Fr. " *integer*, Linn., Spec. 1640.	It grows solitarily in the woods.

This agaric is even more poisonous than the *A. emeticus*, to which it bears some resemblance,—hence requires attention, so as not to confound it with the eatable russules. On the 2d of November, ten individuals, in a forest near Strasbourg, eat freely of the *Agaricus integer venenatus*. M. Claude, a physician, saw these persons about three hours after midday. Four of them, who had eaten less, and had provoked vomiting by irritat-

ing the fauces, escaped with only slight symptoms. The others experienced an acute irritation of the entire alimentary canal, had vomiting, cough, ardent thirst, with cardialgia, anxiety, and oppression. The eyes were haggard, open, prominent, the pulse full and weak at intervals, the tongue pointed, etc. M. Claude provoked vomiting by antimony and the use of a feather. The stomach was evacuated, a purgative was ordered, and subsequently several glasses full of the decoct. of quinquina. This sufficed to relieve five of those sick. In the sixth, a man of strong constitution, the following phenomena were observed: tympanitic distension of abdomen, extreme epigastric sensibility, violent trismus, distortion of countenance, weak pulse, profound coma, from time to time a silent delirium (*délire taciturne*), weakening of the tendons, and cold extremities. A repetition of the emetic provoked copious vomiting, with an amelioration of some of the bad symptoms. After another purgative and abundant discharges, the abdomen became natural. The powder of quinquina was added to the decoct. of the bark. Some of the sick would now and then regain their consciousness, and then relapse into a state of insensibility. Frictions were made to the soles of the feet, and the forehead and temples were bathed with vinegar, and the respiration of ammonia was used. The coma, which had lasted three hours, disappeared entirely, and was replaced by a lively delirium, followed by furious and extreme loquacity. It required a number of persons to confine the sick. After an hour the delirium ceased, and a calm sleep succeeded for three quarters of an hour. Those that were sick remembered nothing, and complained alone of weakness.

Another set of cases observed were those of J. M.,—a woman at service, aged twenty-eight, and *enciente*,—her daughter, aged six years and a half, her mother, aged sixty-four, and a man aged forty-two, of a sanguine temperament. All were natives of Bordeaux, and eat for supper some of these mushrooms. The symptoms which followed we cannot detail here; but they resembled, generally, those cited above. There were also dilated pupils, and difficulty of respiration. (We refer the reader to Roques, Hist. des Champs. 183; Guerin de Mamers Nouvelle Toxicol. 331.) Authors are not agreed as to the properties of *A. integer*, of Linn., confounding it with this, and with the *A. emeticus*. See "Toxicologie" of Plenck, and his "Bromatologie."

Agaricus fœtens, Pers., Syn. 443.
" *piperatus*, Bull., 292.
" *incrassatus*, Sow.
} Fetid, Simple-gilled Agaric. Woods; July; Carolina to Penn. H. W. R.

Highly acrid; odor very strong and penetrating, empyreumatic, somewhat resembling that of prussic acid, but exceedingly disagreeable. Crypt. Eng.

M. Roques does not hesitate to place it among the poisonous species. Hist. des Champ. 185.

Agaricus furcatus, D. C. 371; Roques, Pl. 12, 3.
" *bifidus*, Bull., 26.
Russula furcata, Pers., Obs. Myc. 202.
Amanita, Lam.
} Green Fork-gilled Agaric. S. C. and Penn. H. W. R.

The flesh is white and friable, of a nauseous odor, and of a bitter and saline taste. It passes for poisonous. Roques, Hist. 185.

Agaricus virescens, Pers.; Berkley, Crypt. Eng.
" *furcatus, va. heterophyllus*, Fries.
" *squalidus*, Chev., Fl. Par. 141.
} Mild Fork-gilled Agaric. Woods; July to September.

Taste and odor mild. Excellent for food, according to M. Roques, and eaten under the name of "*verdette*," but requires to be carefully distinguished from the *A. furcatus*, and other acrid russulæ. Crypt. Eng.

Agaricus turbinatus, Bull., Champ. 110; Fries, Syst. 255; Roques, Hist. 292. Grows in autumn, in woods; N. Carolina. Schw.

This species, says Roques, is considered edible by some; but it has neither an agreeable taste nor odor. Champ. Comest. 292.

Agaricus globocephalus.

Cited as poisonous, by Orfila, in his Treatise on Poisons.

Agaricus torminosus, Schoeff.
" *piperatus*, Linn., Suec. 1195.
" *necator*, Bull.; Roques, Hist. des. Champ.
} Bearded Pepper Agaric. Woods, heaths, thickets, borders of fields; June; N. Carolina. Schw.

Very acrid; but the Russians preserve it in salt, and eat it seasoned with oil and vinegar. Roques, Hist. des Champ. 88;

Bougard, Lond. Med. Gazette. The plant is said to be poisonous in France; but this may be confounded with the *A. piperatus* of Scop., see *apud* p. 244.

The *A. necator*, of Bull. is said by him to produce "terrible colics." Orfila, Traité des Poisons, iv. 425; and Léç. de Méd. Légale, avec planches descript. M. Braconnot found in this, and *A. volvaceus*, gelatine, albumen, and phosph. potash in large quantity, also adipocire; which indicate an animal nature. Ann. de Chim.; M. & De Lens' Dict. de M. Méd. ii. 203; see also, *A. pip.* infra. In supplem. vol. 1846, to M. & De Lens' Dict. de M. Méd., experiments to test the power of the *A. pip.* Linn. in dissolving stones in the bladder, are advised—Loesel (Flor. Pruss. 82) having stated that the milky juice, mixed with the syrup of Althæa, would bring away the gravel with the urine, as his own experience had attested. Roques mentions that the experiments of Paulet seem to prove that this plant is not poisonous, although Bulliard and Dr. Picco assure us to the contrary. Roques gave to two young cats one of these mushrooms mixed with food. Although it had taken a very little, it was seized with a violent diarrhœa, with much weakness and trembling, which lasted for several hours. On the next day, one of these animals still remained feeble, while the other was in a natural state. He repeated the experiment upon a dog, which ate a mushroom mixed with its food. An hour afterwards it vomited, and rejected the entire mixture. It remained prostrate for many hours, and appeared much exhausted. In the evening it took milk with avidity. It is probable, he adds, that the poison would have caused death, or very grave symptoms, had it not been rejected.

Dr. Larber reports a case of poisoning, occasioned by the *A. necator* of Bulliard, and one of its varieties. Two persons died at Bassano from having eaten these plants. Among the principal phenomena, he observed violent vomiting amounting to a sort of cholera, followed by a profound stupor, which no remedies could subdue. He found the sanguineous vessels of the meninges much injected, and the digestive organs more or less inflamed (Sow., Fung. Sag. i. 75). Bulliard, remarks Roques, thought that he did not confound this with the species eaten in portions of Europe; but the two have nothing in common, with the exception of a milky juice. The poisonous plant may be confounded with

the common Hydnum (repandum), which has the same color. Hist. des Champs. Vén. 197.

Agaricus deliciosus, L., Suec. 120; Pers., Syn. 432; Roques. *Lactarius* of recent botanists. Orange-Milked Agaric. Fir woods; September and October; S. Carolina! to Penn.

Odor and taste agreeable, like that of *cantharellus cibarius*, but slightly acrid. From the account given by M. Roques, it would seem that this agaric, however delicious, is not always to be eaten with impunity, or that the species which is found in the north of Europe is different. I have always found the milk acrid. Crypt. Eng. Orfila, in his Traité des Poisons, describes a poisonous species under *A. acris*, Bull. Léç. de Méd. Leg., Pl. 18, fig. 3.

M. Dufresnoi mentions it as a remedy for tuberculous phthisis. He mixes three drachms of the powder in an opiate made of a half-ounce of conserve of roses, two drachms of spermaceti, the same of washed sulphur, mixed in syrup of Milfoil. He assures us that the use of this electuary, of which a person can take a piece the size of a grape during the day, continued for some time under suitable regimen, cured more than thirty cases of phthisis tuberculosis (Mat. Med. Indig. par Coste et Villemet, 91). A person in experimenting with it might give, Mérat adds, the powder mixed simply with honey. M. & De Lens' Dict. de M. M. i. 104.

Roques says that the mushroom eaten in Germany under the name of *Reitzker*, has a piquant taste, and contains a mucilaginous principle very abundant, which announces its nutritive qualities. Plenk says it is excellent as a ragout. The Germans preserve it in vinegar for winter use. It was owing to the possession of this mucilage, that Dufresnoi praised it as a remedy in pectoral affections.

Agaricus volemum, Fr. " *ruber*, Tratt., Fung. Aust. " *lactifluus*, Schoeff.	Milk-red, Milky Agaric. Woods; July, Aug. S. C.! and N. C.

Lactarius of more recent botanists.

It is pronounced by Trattinnick excellent for food, if properly prepared; but very unwholesome, if not sufficiently stewed. M. Roques' account, if in the cases he mentions there was no mistake as to the species, is even more unfavorable.

Mr. Berkley says he has seen the particles in the milk of this species, moving about in every direction with immense rapidity, exactly like those observable in gamboge mixed with water. Crypt. of Eng.

Agaricus subdulcis, Pers., Syn. 433; Roques, Hist. 200.
" *lactifluus dulcis*, Bull., Champ. 224.
" *rubescens*, Shoeff., Fung. 73.

The flesh is milky, and in the young individuals, impregnated with a sweetish, milky juice, which becomes nauseous and acrid in those older. Roques says it is eaten in some localities. Hist. des Champs. Comest. 200.

Agaricus lactifluus aureus, Pers., Champ. 220; Roques.
" " *ruber*, Trattin, Fung. Auster. 3.

The flesh of this plant is fine and delicate, and is much eaten in Europe. Roques says that this resembles the *A. lactifluus* of Linn. according to Plenk; but this is less firm in texture, and acquires by cooking a very agreeable taste. It is very gelatinous and nutritive, but difficult to digest (Bromatologia, 83). The general remedies advised in the Hist. des Champs. Ven. for poisoning by the milky agarics which irritate the viscera, are mucilaginous and antiphlogistic remedies. Vomiting is recommended in the first stage, but not if the digestive tunics are much inflamed. *Op. cit.* 204.

Agaricus acris, Bolt., Pers. Syn. 437; Fr., 65; Roq. & Berk.
" *urens*, Poir., Encyc. Supp. 405.

Acrid Milky Agaric. Woods; August; N. Carolina. Schw.

Roques says this is not the acrid agaric of Bulliard. It has a milky, acrid juice.

Agaricus papilionaceus, Bull., Champ. 561; Pers., Syn. 410; Berkley.

It grows in woods, and is not eatable. S. C.! to Penn. Roques, Hist. des Champ. 205.

Agaricus narcoticus, Botsch, Fung. 16, 79.

It gives out a narcotic odor, which causes pain in the head in those who come in close contact with it for some time. Roques, Hist. des Champ. Vén. 205.

Agaricus Pyrogalus, Bull. and Roques.

Small-Zoned Agaric. Grows in woods; August.

Orfila describes it as poisonous. Traité des Poisons, iv. 426; Leç. de Méd. Lég. pl. 18, f. 2. The milky juice is sweet, but extremely acrid. Roques places it among the poisonous species. Hist. des Champs. 198.

Agaricus quietus, Fr.

"Odor oily, and sometimes like that of bugs." Berkley's Crypt. England.

Agaricus piperatus, Scop., 449; Roques; Berk. Crypt.
" *amarus*, Schoeff., t. 83.
" *acris*, D. C. Fl. Fr. 375.
Lactarius (see *A. pip.* supra).

Pepper Agaric. Woods; July and August; S. Carolina! to Penn.

Though very acrid when raw, it loses its bad qualities entirely by cooking, and is extensively used on the continent, prepared in various ways. It is preserved for winter use by drying, or pickling in a mixture of salt and vinegar. Crypt. Eng. Fodere mentions that this species continues acrid after it has been dried (Méd. Legale, iv. 61), which tends to refute the idea that all are safe when dried. It is stated that it is eaten in Prussia and Russia, but that it is poisonous in France (Haller, Hist. Stirp. Helv. Indig. ii. 328),—probably the species described by Orfila under this name as poisonous. Traité des Poisons, iv. 425; Leçons Méd. Lég. pl. 19, fig. iv. Roques says that all parts contained a viscid milk, abundant, and very acrid, which Bauhin had shown to possess an irritating action upon himself; which M. Roques had occasion to confirm by his own experience. Upon one occasion he bruised one and tasted a portion, which caused a burning sensation over the whole throat. Plenk says that it irritates the tunics of the stomach, provoking cardialgia, and even causing death. Roques has eaten them when boiled.

This agaric contains a gelatinous principle, and a milky fluid, which becomes concrete, and dissolves perfectly in alcohol. The resulting tincture is of a beautiful golden color. By the analysis of Braconnot, it furnishes albumen, adipocire, crystals of sugar, acetate of potash, etc. Dr. Dufresnoi assures us that he has given it with success in the first stage of phthisis. This plant should

not be confounded with the *A. sanguineus* or *fœtidus* of the French Flora. Roques, Hist. des Champs. Vén et Suspects. 193.

Agaricus pratensis, Pers., Berk. Crypt. 39. " *fulvosus*, Bolt. " *miniatus*, Schoeff. " *ficoides*, Bull., Roques, 242.	Reddish Field Agaric. Past's and gras'y pl'ces. Aug.; N. Car. Schw.

Odor slightly agreeable, eatable.

Agaricus fulvus, Roques, Hist. Champ. Com. 262. N. Carolina. Schw.

This, which Roques says is not the *A. fulvus* of Bull., has a well-pronounced odor, but a sweet and agreeable taste. Hist. 262.

Agaricus tortilis, Bull. 144; D. C. Fl. Fr. 525; Roques, 273. Grows in pastures; August and September.

It has a strong perfume and an agreeable taste, and is much esteemed as an article of food. Roques, Hist. des Champs. 275. Roques also devotes a large share of attention to this in his Phytographie Méd. t. iii. 74–162; and in his Nouveau Traité des Pl. Usuelles, t. ii. 370. He says that this species is undoubtedly eatable, and is not to be confounded with the Amanitas, as some have.

Agaricus oreades, Bolt., Fries' Syst. Myc. " *orcades*, With. " *pseudo-mouceron*, Bull. " *pratensis*, Sow. t. 247.	Fairy-ring Agaric, Scotch Bonnets, Champ. Ca. to Pa.; pastures; May and Novem.

Taste and odor strong, but agreeable. Though tough, much used as an article of food on the Continent, and occasionally in this country; but too frequently very different and poisonous fungi are gathered under the name. See Mush. and Champ. Illust. by J. D. Sowerby; and Roques, Hist. des Champ. 115; Crypt. England. Withering states that his third variety is not the *mouceron* of the French, though often used in France instead of that; "and as it may be procured plentifully, and its fine flavor will probably soon introduce it to our tables, particularly in catsups and in powder," he takes much pains to guard us against errors. With., Ed. 4th vol. 218, 219.

Agaricus lateritius, Schoeff., 49; Berk., Crypt. Eng. 110.
" *amarus*, Bull., Champ. 50, 562; Roques.
" *auratus*, Fl. Danica, 820.

Large Fasciculated Agaric. Stumps, trees; May and October; S. Carolina! to Penn.

Roques says it is acrid and very bitter. It does not affect animals in any sensible manner, but after some time they appear incommoded and refuse to eat. Some rejected them by vomiting, some were sick several days and finally died. Roques, Hist. des Champ. 234.

Agaricus scorodonius, Fr., Syst. Myc. 130.
" *aliatus*, Schoeff.

Small Garlic Agaric. Heaths and pastures. N. Carolina. Schw.

According to Persoon and Trattinnick, notwithstanding its strong garlic scent, it forms an article of food. Crypt. Eng.

Agaricus alliaceus, Pers., Syn. 375; Jacq., Roq. 236; Berk.
Fungus alpinus, Mich.
(*A. alliaceus* of Jacq. is found in North Carolina.)
Remarkable for its odor of garlic.

Agaricus porreus, Pers., Syn. 376; Roques, 236.
" *alliaceus*, Bull., 158; D. C.

This and the above are of equivocal qualities, like most of the section Mycene. Roques, Hist. des Champs. 237.

Agaricus esculentus, Wulf.
" *clavus*, Schoeff.
" *perpendicularis*, Bull., 422.

Small Esculent Agaric. Oct. and May; Carolina! to Penn.

Much eaten in Austria, where, in the beginning of April, large baskets of it are brought to market under the name of Nagelschwamme, which accords with Linnæus' name, *A. clavus*. It has, however, a bitter, unpleasant taste. Crypt. Eng.

Agaricus frumentaceus, Bull. 571; Roques. Grows in woods, in spring.

It exhales an odor resembling the farina of grain, and may be placed among the alimentary species. Roques, Hist. 273.

Agaricus tenacellus. Dark Fir-Cone Agaric; N. C. Schw. Taste, very pleasant.

Agaricus stypticus, Bull. Fries, 188.
" *semiopetalatus*, Shoeff.
} Found in fall, in woods, S. C.!

Cited among the poisonous species by Orfila. Traité des Poisons, iv. 426, and Leç. de Méd. Leg., Pl. 184. It has an acrid taste, and when tasted produces constriction of the fauces, which alone indicates its deleterious qualities. Roques, Hist. des Champs. 171.

Agaricus prunulus, Scop., Fl. Carn.
" *abellus*, Roques, 16, and Schoeff.
" *pallidus*, Sowerb. Fung. 143.
} Mouceron.—Woods and pastures. June, Oct.

It has a firm, white, fleshy, delicious taste and odor, like that of fresh meal. Much esteemed on the continent of Europe as an article of food. Crypt. Eng. It is dried and much used in France. A large price is paid for those obtained near Baréges, in France. Roques gives much instruction respecting the various modes of preparation. Hist. des Champs. Vén. et Suspect. 245.

Agaricus squarrosus, Chevallier, Fl. Par. 211. Berkley.
Agaricus squamosus, Bull. 266; Roques, 294.
" *floccosus*, Shoeff. 61.
} Found in autumn, in woods. A. S. of Pers. in N. Carolina.

According to Chevallier, it has the taste and odor of the edible species. Roques' Hist. des Champs. 293.

Agaricus rhodopolius, Fries.
" *hydrogrammus*, Bull., Pl. Vén.
} Dull Rose-gilled Agaric.

Odor strong, sometimes resembling that of nitric acid. Crypt. Eng.

Agaricus rimosus, Bull., Champ. 388; Roques, 273; D. C., Fl. Fr. 517. N. Carolina to Pa. Aurivenius Batsch., Cont. i. 107.

Prof. Balbis reports that a whole family was poisoned at Turin by eating this plant, if we can rely upon the identity of the species. Roques' Hist. des Champs. Vén. 273.

Agaricus bombycinus, Schoeff. *Fungus magnus*, Mich., Nov. Gen. *Amanita incarnata*, Pers., Syn.; Roques.	Silky wrappered Agaric. Inside of trees, stumps, on touchwood. Aug. Sept. S. Carolina! to N. C.

It is considered eatable (Crypt. Eng.), Roques says, in Tuscany. Hist. des Champs. 359.

Agaricus ulmarius, Bull., Champs. 510; Fries, 186. Found in Oct. and Nov. on trunks of ash and black poplar. N. Carolina to Pa.

The flesh is firm and compact, but the taste is not agreeable. Roques, 171.

Agaricus tessellatus, Bull., Champ. 513; Roques. N. Carolina.

Flesh is white and coriaceous; but, notwithstanding the recommendation of Persoon, Roques does not think it prudent to make use of it. Hist. des Champs. 172.

Agaricus glandulosus, Bull. Champ. 426; Roques' Hist. 172. Carolina to Pa.

The flesh is white and firm, and of an agreeable odor and taste. Hist. des Champs, 172.

Agaricus ostreatus, Pers. Champ. 216; Jacy, Fl. Aust. Roques. Carolina to Pa.

Its flesh is white and of good taste, and is eaten in portions of Europe. Hist. des Champs, 173.

Agaricus cortinellus, D. C., Fl. Fr. Suppl. 541; Roques' Hist. 294.

According to De Candolle, it is compounded in Montpelier with other species, and eaten. Roques, 295.

Agaricus sambucinus, Cord., Champ. 199; Roques. *Agaricus alborufus*, Pers., Champ. 191.	Grows in spring and autumn.

It has a sweet taste and agreeable strong odor, and is much sought after by amateurs. Roques' Hist. des Champs, 305.

Agaricus Georgii, With.
Fungus esculentus, Raü., Syn. } St. George's Agaric, White-caps. Meadows, woods, and near buildings. Spring and autumn.

Distinguished from the *A. campestris* by the almost white gills and the yellow stains when bruised. It is very generally rejected by house-keepers in the country as unwholesome, if not poisonous; but in London it is frequently sold under the name of white-caps. The flavor is far inferior to that of the common *mushroom;* its smell is strong and unpleasant, and it is little fit for making catsups, having but a small quantity of juice, and that not of a good color. Withering gives the description of one weighing 14 lbs. It is called in France *boule de neige.* Crypt. Eng. ii. p. 106.

Agaricus sulphureus, Bull. 168, 545; Roques' Fries, Syst. Myc. i. 110. Brimstone Agaric. Thick woods, among leaves. Autumn. N. Carolina. Schw.

It exhales a nauseous odor, and Roques places it among the suspicious or dangerous species. Hist. des Champ. Comest. 263.

Agaricus volvaceus, Bull. t. 262.
Amanita virgata, Pers., Syn.; Roques' Hist. } Stove Agaric. N. Carolina. Schw.

M. Braconnot found in this species gelatine, albumen, and a large quantity of phos. potash, also adipocire, which shows something of an animal nature. Ann de Chim. Mér. & De L., Dict. de M. Méd. ii. 203.

Agaricus aquifolii, Pers., Champ. 206; Roques. Autumn.

According to Paulet, one of our best species; the flesh is white, fine, and of exquisite taste and perfume. Roques' Hist. des Champ. 263.

Agaricus sapidus, Poir., Encyc. Suppl. 420.
" *griseus*, Pers., Syn. 445. } See *A. esculentus.*

The *Agaricus esculentus*, Pers. and *A. aureus*, Pers., Roques says is eaten in Germany. Hist. des Champ. 175. These plants are figured by Krapf. Schwam. 5.

Agaricus tigrinus, Bull., Champ. 70; Pers., Syn.; Roques, 240; Crypt. Eng. *Lentinus tigrinus*, Fries. } Found in Autumn.—Carolina.

It is agreeable in taste and odor, and is eaten in certain parts of Europe. Roques.

Agaricus infundibuliformis, Bull. 286; Roques; Berkley. " *gilvus*, Pers. } Found in Autumn.—S. Carolina.

It has a strong odor, but agreeable, and may be employed as food. Roques' Hist. des Champs.

Agaricus odorus, Bull.; Crypt. Eng. 36.
" *anisatus*, Roques' Hist. 24; Pers., Syn. Champ. 250. } N. Carolina. Schw.

It exhales in dry seasons an agreeable, penetrating odor, analogous to that of anise seed.

Bulliard says it has an agreeable taste. Roques has never tried it, but he is inclined, from its strong volatile odor, to suspect it. Hist. des Champs. 242.

Agaricus splendens, Pers., Syn, 452; Roques.

This has an agreeable taste, and is eatable. Roques, 241.

Agaricus cuneifolius, Fr., Berk. Crypt. 44.
" *ovinus*, Bull. 580; Roques, 261. } Wedge-gilled Agaric. N. Car.

This has a sweet taste and the smell of farina, qualities which distinguish the good species. It is eaten either fresh or dried. Roques' Hist. des Champs. Comest. 262.

Agaricus campestris, L., Suec.
" *edulis*, D. C.; Roques' Hist. des Champ, and Bull.
" *arvensis*, Schaeff, 310. } Mushroom (*Boule de neige*). Pastures, dung-hills &c. S. Carolina! Pennsylvania, and Ohio (Lea). May and October.

The flesh is firm, thick, white, more or less stained with reddish brown, especially when bruised; gills very unequal, at first of a beautiful pink; free, obtuse, and sometimes forked behind; broad in the middle, at length dark, mottled with brownish, purple, minute sporules. The edge white and minutely denticulate. "The most generally used of all the agarics, and the safest." It

is extensively cultivated, on which point M. Roques has some excellent information. The artificial production of the species, without the aid of spawn, has been frequently brought forward as an argument for the equivocal generation of fungi. But when it is considered how many millions of the sporules must be devoured, together with the herbage, by the animals whose dung is a principal material in the compost, much of the force of this argument vanishes. Crypt. Eng. vii. p. 107. These plants are frequently meteoric, and it is possible to increase particular species with certainty, by an ascertained mixture of organic and inorganic matter exposed to well-known atmospheric conditions. The process adopted by gardeners for obtaining this species proves this; a process so certain that no one ever saw any kind of agaricus produced in a mushroom bed. Lind., Nat. Syst. 331; Fries' Syst. Mycolog. The Rev. M. J. Berkley uses these words: "Too much caution cannot be used in the eating of *dark-gilled* agarics." See the distinctions pointed out in the little work entitled, the "Mushroom and Champignon Illustrated," by Mr. Sowerby.

According to Vanquelin's analysis, it consists of adipocire, albumen, a sugary matter, osmazome, an animal substance, insoluble in alcohol, fungin, and the acetate of potash. Ann. de Chim. lxxxv. 7; Mérat & De Lens, Mat. Méd. i. 102.

This plant attracted much attention among the Romans, by whom it was cultivated with particular care. Horace, and other writers, occasionally allude to it. M. Roques advises us to avoid those which have attained their full development, as they may produce more or less gastric irritation; he mentions his having treated a case, in 1814, of this kind, in which there were violent colic, spasm, and general weakness, by mint-water, laudanum, and demulcent drinks containing ether, which gave perfect relief. He recommends opium generally in these cases, sometimes giving milk and mucilage, not continuing the former where there is evidently visceral inflammation. Hist. des Champs. Ven. 209.

Agaricus fabaceus, Berkley.

Mr. Ravenel informs me that it is an alliaceous, edible mushroom.

Agaricus atramentarius, Bull. " *luridus*, Bolt. *Fungus multiplex*, Vaill.	Inky Agaric. Fields, gardens, wet places. Spring and autumn.

It contains a black matter, which may be used as ink. Mr. Coste, of Philadelphia, who wrote a paper upon it, assures us, says Mérat, that his communication was written with it, as also the letter which was addressed to the Academy. Dict. de M. Méd. Supplem. vii. 17; Comptes-rendus hebd. de l'Acad. des Sc. xiv. 667.

Agaricus callosus, Fr. Conic Dung Agaric.

Sowerby informs us that this species nearly proved fatal to a family in London. Crypt. Eng.

The taste of the *A. lateritius* and *fascicularis* is very bitter and nauseous.

Agaricus insidiosus.

Cited as poisonous by Orfila in his Traité des Poisons.

Agaricus campanulatus. See *A. alutaceus.*

Agaricus zonarius, Bull., Champ. 104; Roques; D. C.; Fl. Fr. 375.
" *flexuosus*, Pers., Syn. 431.
} Found in woods in Autumn.

An abundant corrosive milk exudes from it.

Agaricus urens, Pers., Syn. 333; Bull.

Poisonous. Orfila, Traité des Poisons, iv. 427; Leç. de Méd. Leg. Pl. 18, 1. It has a slightly acrid taste, and characters which exclude it from the number of eatable species.

Agaricus hariolarum, Bull. 585; Fries, Syst. Myc. i. 125; Roques' Hist. 264.
" *sagarum*, Pers., Syn. 331.

This plant was used by the astrologers, magicians, and charlatans, for certain purposes. It can be eaten without fear.

Amanita muscaria. See *Agaricus.*

There are no true Amanitas recognized in Mr. Berkley's Crypt. Eng.

The *A. venenata* is considered poisonous. Letellier states that he found in *A. bulbosa* and *verna* an active principle, called *amanatine*, to which is ascribed their narcotic property. See *Agaricus muscarius.*

The *A. cæsaria* is considered eatable. *Amanita citrina*, stewed with carp and eaten, induced vomiting, followed by deep sopor, in three persons who recovered; another had true and violent cholera but also recovered; two who had partaken of the same meal, who were children, became profoundly lethargic and comatose; emetics had no effect, and death soon ensued without any other remarkable symptom. The individuals who recovered were not completely well till three weeks after the fatal repast. Orfila, Toxicol. Gén. ii. 433. This set of cases, remarks Christison, shows the tendency of the poisonous fungi to cause in one set of persons pure irritation, and in another pure narcotism. "On Poisons," p. 107; Orfila, Traité des Poisons, iv. 420.

Hypophyllum sanguineum. Puddock-stool.

We cannot ascertain the position of this genus, though they should perhaps be placed near *Amanita.*

Christison describes a case of poisoning from a plant to which he alludes under the name. He says that it is a small, conical fungus, well known to children in Scotland as the puddock-stool. This species seem to cause convulsions as well as sopor. A family of six persons, four of whom were children, ate about two pounds of it dressed with butter. The incipient symptoms were pain in the pit of the stomach, a sense of impending suffocation, and violent efforts to vomit, which symptoms did not commence in any of them till about twelve hours after the poisonous meal, in one not till twenty hours, and in another not till nearly thirty hours. One of the children, seven years of age, had acute pain of the belly, which soon swelled enormously; afterwards he fell into a state of lethargic sleep, but continued to cry; about twenty-four hours after eating the fungi the limbs became affected with permanent spasms and convulsive fits; and in no long time he expired in a tetanic paroxysm. Another of the children, ten years old, perished nearly in the same manner, but with convulsions of greater violence. The mother had frequent bloody stools and vomiting; the skin became yellow; the muscles of the abdomen were contracted spasmodically, so that the navel was drawn towards the spine; profound lethargy and general coldness supervened; and she, too, died about thirty-six hours after eating the fungus. A third child, after slight symptoms of amendment had shown themselves, became worse again, and died on the third day, with trembling, delirium, and convulsions. This patient, who

had taken very little of the poison, was not attacked till about thirty hours after the meal. The fourth child, after precursory symptoms like those of the rest, became delirious, and had an attack of colic and inflammation of the bowels, without diarrhœa; but he eventually recovered. The father had a severe attack of dysentery for three days, and remained five days speechless. For a long time afterwards he had bloody diarrhœa; and although he eventually recovered, his health continued to suffer for an entire year. Picco, Mem. de la Soc. Roy. de Méd. 1780, 81, 355. These cases, adds Christison, illustrate clearly the simultaneous occurrence of narcotic and irritant symptoms in the same individual. "On Poisons," p. 707. Mr. Berkley includes no Hypophyllum in his Crypt. of Eng.

Hypophyllum niveum.

Cited by Orfila (Traité des Poisons), on the authority of Paulet as poisonous. See Christison on Poisons, 701.

Hypophyllum maculatum, *H. tricuspidatum*, *H. albo-citrinum*, *H. crux melitensis*, *H. pudibundum*, *H. pellitum*, are described as poisonous by Orfila. Traité des Poisons, iv. 420. Also in Leçons Méd. Legale, Pl. 14, avec les figures. descript.

Cantharellus cibarius, Fr., Syt. Myc. 318. *Fungus angulosus*, Vaill. *A. cantharellus*, Linn.; Bull., Champ. 62. *Merulius cantharellus*, With.	Common Chantarelle. Woods. Summer and Autumn. S. Carolina! to Pa.

This species forms, according to Bulliard, a main article of food in some districts of Europe, though dangerous when eaten raw. It must not be confounded with the *C. aurantiacus*, a nearly allied species, which is reckoned unwholesome, if not poisonous. Crypt. Eng. Withering observes that the lovers of mushrooms may eat this with safety, though it is more tough and less highly flavored than either the *Ag. orcades* or *A. campest.* Pl. Rariores, 169. M. Roques also remarks upon the safety with which it may be employed. The flesh is white and milky, and of a piquant but agreeable taste. M. Roques furnishes much information respecting the mode of preparation. It is put up in jars for winter use. Hist. des Champs. 169. See Ravenel's Fungi Carolin. Fasc. II.

Cantharellus aurantiacus, Wulf. in Jacy Coll.; Fries. *Merulius aurantiacus*, Pers., Syn, 488. *Ag. cantharelloides*, Bull. 505. *va. a Merulius nigripes*, D. C. Fl. Fr. 243.	Fir woods and pastures. August and November.—N. C. Schw.

The flesh is of soft consistence, and it has neither the odor nor taste of the true *chantarelle*, and hence not admitted among the eatable mushrooms. Roques' Hist. des Champ. 169.

Meruluis lachrimus, Wulf. " *destruens*, Pers., Syn. 496. *Boletus arboreus*, Sow.	Dry-rot. S. Carolina, St. John's Berkley. On the inside of wainscoting, hollow trunks, ships, &c.

The only certain preventive of this dreadful pest seems to be free circulation of air and impregnation of the wood with a strong solution of corrosive sublimate. It is not improbable that white of egg may, in some cases, answer the same purpose. Our attention is called to a very curious article in the new series of *Ann. des Sciences Naturelles*, v. i. p. 30, by Dutrochet, on the origin of molds. Crypt. Eng. vii. p. 129; Lind., Nat. Syst. 333. In a letter to us from H. W. Ravenel, Esq. furnishing us with localities of fungi in this State, he says, "I laid down a new floor to my barn a few years since, and the greater part has been totally destroyed and reduced to powder. I have discovered this fungus as the cause of the mischief. I have also known other instances in this neighborhood (St. John's Berkley, S. C.).

Merulius vastator, Tode. " *aureus*, Fries.	S. C.! to Pa.

A dry rot; also destructive to wooden buildings.

Dædalea quercina, L. *Agaricus quercinus*, Linn. Suec. 1241.	Pennsylvania.

This is susceptible of being transformed into amadou (tinder). Mérat & De L., Dict. de M. M. 213, 1.

Dædalea suaveolens, Bull. *Boletus* " Bull. t. 310.	

Employed, since 1676, in phthisis. J. C. Enslin wrote a thesis upon the plant (Diss. Erlangiæ, 1785). Auc. Journ. de Méd.

lxxv. 182. Two drachms of the powder are given morning and evening. Linnæus assures us, remarks Mérat, that in Lapland it is regarded as an aphrodisiac. M. De Cand. made with it an electuary, of which from one scruple to a drachm was given in phthisis each day. M. & De L., Dict. de Mat. Méd. i. 636.

Polyporus versicolor, L. Fries, Syst. } Party-colored
Boletus " D. C., Fl. Fr. 301. } Polyporus. Common on trees and sticks. South Carolina! to Pennsylvania.

This species is generally found grouped in clusters.

It is rather suspicious in character, and Plenck ranks it among the poisonous species. Roques' Hist. des Champ. 119.

Polyporus officinalis, Fries. } See *Boletus larycinus*.
Boletus lancis, Bull. }

Polyporus suaveolens, L.; Fries' Syst. My. 366. }
Boletus suaveolens, L. sp. Pl. } Sweet-
" *salicinus*, Sow. }
scented Polyporus. On willows. Found throughout Europe, also in NewYork. H. W. Ravenel.

Linnæus says that it is regarded as aphrodisiac by the Laplanders (Persoon, Champ. Comest.). See also Diss. of Enslin, 1785; M. & De L., Dict. de M. M. Supplem. 1846, 116.

Polyporus suaveolens, var. salicinus, Fries' Syst. Mycol., Mr. Berkley describes as a variety under *P. salicinus*, Grev. M. Roques has some extended observations respecting its great value as an article of food. At different stages of its existence, according to Dr. Enslin, the odor and taste are different; the latter sometimes becoming bitter or acrid. Freschmann, chemist at Erlang, obtained by analysis an odoriferous, distilled water, slightly nauseous and bitter, but without any trace of volatile oil; 2d. A liquor of red tint, slightly acid and of the smell of soot; a black empyreumatic oil, fetid and with sulphurous concretions in it; 3d. An inodorous aqueous extract, of a slightly bitterish and salty taste; 4th. An alcoholic extract, more salt, more bitter, and more odoriferous than the aqueous extract; 5th. A crystallizable

salt of a taste analogous to that of sulph. potash; some lime; a silicious earth, and particles of iron.

This substance, more sweet than that from the *larch boletus*, has attracted the attention of physicians on account of its balsamic and excitant properties. It was employed in the seventeenth century in severe affections of the lungs; and both Sartorius and Boecler passed eulogiums on its value in advanced phthisis. Dr. Enslin, in his monograph, refers to it as a medicine administered with much success by Profs. Schmidel and Wendt, and he recapitulates many facts of great interest concerning it. As this paper is not well known, M. Roques furnishes a pretty full analysis of it.

A young man of twenty-one, having a cough and bloody expectoration which lasted for some time, and finally accompanied by fever, emaciation, copious sweating, swelling of the extremities, and diarrhœa, applied to Dr. Enslin, who gave him an electuary prepared with the powder of the polyporus and honey, in doses of a small teaspoonful four times a day. In a few months he was entirely well.

The second case was that of a man, thirty-six years of age, attacked with fever after the death of his wife, who died of phthisis. The fever assumed the character of a quotidian intermittent, terminating in a severe cough, with the expectoration of a disagreeable odor, continued insomnolence, total loss of appetite, swelling of the feet, diarrhœa, prostration for three months. The case was considered a desperate one, and after having used, without avail, other means of relief, recourse was had to the polyporus. In one month the recovery was complete; the fever, cough, and swelling of the extremities having entirely disappeared.

Case III. The individual who was the subject of the third observation was twenty-two years of age. He had become phthisical after having for some time an affection of the kidney, fever, a dry cough, a taste of blood in the throat, sometimes slightly acid, and showing itself after a repast. During the progress of the disease, the fever became more and more severe, the expectoration turning to a brick-dust color. As the gravity of the symptoms increased, they were attended with more difficult respiration, more marked cough, total loss of sleep, weakness of voice, and, lastly, purulent expectoration. Under the influence of quinine, the fever diminished sensibly; and the cough and hectic con-

dition were finally subdued by the employment of the powdered polyporus and sugar of milk, equal parts, in doses of a scruple four times a day, This was continued during several months, and was attended with complete success. Notwithstanding the number of remedies for consumption, this is confidently advised for meeting certain conditions. See Roques' Hist. des Champ. 117. The *Dædalea suaveolens*, Pers. (*Bol. suav.* Bull.), is possessed of similar properties with the above, according to Roques.

Polyporus squamosus, Huds. *Boletus juglandis*, Schoeff. & Bull. " *polymorphus*, Bull. t. 114.	Large, Scaly Polyporus. Decayed stumps of trees, especially on ash. Sum.

This common but handsome species attains sometimes an enormous size. An instance is recorded in Hooper's Fl. Scot. of its measuring 7 feet 5 inches in circumference, and weighing 34 lbs. avoirdupois, and it was only three weeks in attaining these vast dimensions.

It exhales a strong and penetrating odor, and is eaten in some districts of France; but it is very tough and indigestible. See Roques, Hist. des Champs. p. 56; Crypt. Eng. ii. 135; Mér. & De Lens., i. 635. See detailed analysis by Bracon., Bull. de Pharm. vi. 135. M. Desvaux, a good naturalist, has eaten it with with impunity after maceration. Journal de Botanique, tom. 3; Roques, *cit. sup.*

Polyporus sulphureus, Bull.; Fries, Syst. Myc. *Boletus* " Bull., t. 429.	Sulphur-colored Polyporus. Trunks of trees. Common in Summer. S. C.! to Pa.

The flesh of this plant is yellow, and of a slightly acid taste, but is not considered eatable. Roques, Hist. des Champ. 120.

Polyporus lucidus, Leyss. Roques, Hist. des Champs. *Boletus* " Hooker, in Curt. Fl. Lond. " *variegatus*, Schoeff., t. 263.	Lacquered Polyporus. On stumps. Aug. S. C.! to Nor. States. (H. W. R.)

This is a "most beautiful and highly curious species, occurring in most parts of the world." Hooker's Eng. Flora, 137. It

has been placed among the suspected species; though Bulliard does not attribute to it any bad quality. Roques, Hist. des Champs. 121.

Polyporus destructor. N. Carolina. Schw.

One of the pests of wooden constructions. Lind., Nat. Syst. 333.

Polyporus frondosus, Schrank, Fries. 97. *Boletus ramosissimus*, Schoeff. *Agaricus intybaceus*, Ray, Syn.	Small-headed, Branched Polyporus. On roots of oaks. Sept., Oct. S. Car.! to Pa.

"Smell like that of wine. Esculent." This species, which is reported as excellent for food, sometimes attains a weight of 30 lbs. or more. Indeed, Clusius states that he had seen in Hungary masses three feet high. Woodward found a mass two feet broad. Crypt. Eng. 137.

The flesh is nearly white, firm, and milky, and of a savor and odor quite agreeable. Paulet lauds its good qualities very highly, though it incommodes those who eat much of it.

Polyporus giganteus, Pers., Syn. 521. *Boletus mesentericus*, Schoeff. t. 267.	Giant Polyporus. On logs. Oct., Jan. Pa.

This plant attains an extraordinary size. It is eatable, but should be cooked a long time. Roques, Hist. des Champ. 123.

Polyporus betulinus, Bull. Birch-tree Polyporus. Northern States.

Taste and smell acid.

Polyporus tuber, Roques, Hist. des Champs. 123.

This plant is firm in texture, white, and of good taste, so that it is much sought after. Found in Angiers, in France. *Op. cit. sup.*

Polyporus fomentarius, Linn. *Boletus* " L., Fl. Suec. 1252. " *ungulatus*, Bull. " *applanatus*, Pers., Obs. Myc. " *ignarius*, Sowerb., Fung. i. 131.	Real Amadou-tinder. On oak, birch. S. Carolina! to Pa.

The best species for making amadou, and widely distributed over the globe. Thunberg appears to have met with it in Japan. Crypt. Eng. v. ii. p. 144. Mr. Wetherfield (Lond. Med. Gazette, Nov. 1841) recommends it as an elastic medium for applying support and pressure, and as a defense to tender and inflamed parts. Pereira, M. Med. & Therap. ii. 46. It does not lose its elasticity, like lint.

In the preparation of Amadou, the plant is stripped of its covering, and is beaten with a mallet to render it soft and supple, and then allowed to remain in water in which a little nitrate of potash has been dissolved. That intended for the use of surgeons is prepared in the same way, with the exception that it is not impregnated with the nitrous particles. It is not alone to its astringent power that it staunches wounds, but also to its capacity of absorption, its spongy nature, and the mechanical pressure it allows us to exercise. Roques, Champ. Comest. 118.

Polyporus ignarius, Linn. *Boletus* " " Suec.; U. S. Disp. " *ungulatus*, Pratt.	Hard Amadou

Polyporus. On willow, cherry, and plum trees. *P. ignarius* of Fries. Grows in St. John's, South Carolina. (H. W. R.), also in Pennsylvania.

The U. S. Disp. calls this the "Agaric of the oak;" but we find the synonyms above, which determine it to be a Polyporus. The best is that which grows on the oak, and the season for collecting it is August and September. It has neither taste nor smell. Its constituents, according to Bouillon-Lagrange, are extractive resin in very small proportion, azotized matter, also in small quantity, chloride of potassium, and sulphate of lime; and in its ashes are found iron and phosphate of lime and magnesia. It is prepared for use by removing the exterior rind or bark, cutting the inner part into thin slices, and beating these with a hammer until they become soft, pliable, and easily torn by the fingers. In this state it was formerly much used by surgeons in arresting hæmorrhage, being applied immediately, with pressure, to the bleeding vessel. It was at one time thought to check the hæmorrhage by a peculiar property; but it is now believed to act mechanically, like any other soft, porous substance, by absorbing the blood, and causing it to coagulate, and is not relied

on in severe cases. In the obstinate hæmorrhage which occasionally takes place from leech bites, especially those of the European leech, it may be used advantageously, though perhaps not more so than well-prepared lint. It has been sometimes applied to the purposes of a moxa.

When prepared agaric is first beaten, then steeped in a solution of niter or cannon powder, and afterwards dried, it becomes very readily inflammable, and is applicable to the purposes of tinder. Some recommend the substitution of the chlorate of potassa for niter. The preparation is usually known by the name of *spunk*, and is brought to us from Europe. Spunk, or tinder, the *amadou* of the French, is inflammable by the slightest spark. It is said to be prepared also from the *B. ungulatus*, *fomentarius*, and *ribis*. U. S. Disp.; Pereira, M. M. 46. It is perceived, however, that this is identical with the *B. ungulatus*. Ainslie, i. 5; Lind., Nat. Syst. 333; Mérat & De L., Dict. de M. Méd. 213; Ann. De Chim. li. 91; Auc. Journ. de Méd. xiv. 59, xv. 78.

In Franconia, they beat the inner substance into the form of leather, and sew it into garments. Wade's Pl. Rariores, 180.

Polyporus tuberaster, Roques, Hist. des Champs.
" *esculentus*, Mich., Gen. Pl. 131.
Boletus tuberaster, Jacq., Collect. Sup. 8–9.

This plant is found in Italy, and is much cultivated for its very delicate flavor and perfume. Roques, Hist. des Champs. 125. (See *Bol. tuberaster*.)

Polyporus ovinus, Schoeff., Fung.; Roques, Champ. Comest.
Boletus albidus, Pers., Syn. 515.
} N. Car.

These are grouped together, and are eaten in Germany. Roques, *op. cit. sup.* 125. The *Boletus albidus* of N., sufficiently distinct from this, Roques states has a sweetish taste and a well-marked odor, though he does not advise it for culinary purposes. Hist. des Champs. 150.

Polyporus carinthiacus, Jacq., Collect. 542.
Boletus subsquamosus, Pers., Champ. 40.

Found in Sweden, Austria, and Carinthia. Its substance is compact, and it is eaten in the last-named country. Roques, Hist. des Champs. 126.

Polyporus umbellatus, Roques, Hist. des Champs. *Boletus* " Schoeff., Fung. iii. & Pers. " *ramosissimus*, *va. a.*, Jacq., Fl. Aust. 2, 172.	*P. umbellatus*, Fr. In Pa. (H. W. R.)

These two species or varieties are found in Germany. In grouping the Polypores, Roques advises us, as a general rule, to reject as articles of food those which have lateral pedicles, and never to make use of those whose texture is very coriaceous. Hist. des Champs. 126.

Boletus granulatus, L. " *lactifluus*, With., v. 4, 280. " *circinans*, Pers., Syn. 505.	*B. gran.* Fr. S. C.! (H. W. R.), also in Pa. Milky Boletus. Pine lands. August, Sept.

The Boleti, when wounded, heal in much the same manner as the flesh of animals. Edinb. Phil. Journ. 14, 369; Lind., Nat. Syst. 333.

Eatable, according to Persoon. Withering says that its flavor is like that of *Agaricus campestris*. *B. circinans* of Roques is certainly a different species. Crypt. Eng. 149. See also Roques, Hist. des Champs. 155.

Boletus piperatus, Bull., Champ. i. 451. " *ferruginatus*, Batsch, Cont. 281.	Pepper Boletus.

Found in France. North Carolina to Pennsylvania. (H.W.R.)

"Taste remarkably acid and pungent." Grev. A small fragment, of the size of a nut, beaten up and mixed with a bit of bread, causes in an hour, says Roques, a painful sensation at the epigastrum, which after a while ceases, without further ill consequences. Hist. des Champs. 148.

Boletus subtomentosus, L., and Berkley's Crypt. Eng. " *cupreus and crassipes*, Schoeff. " *communis*, Bull. " *chrysenteron*, Bull., 490, and Roques, Hist. des Champs.	Subtomentose Boletus. Woods. Sum'r & Aut'mn. Found n'r Paris. S. C.! to Pa. (H. W. R.)

Taste not unpleasant. It is eaten in Germany, according to Trattinnick; but he does not give a very favorable account, and

recommends only young specimens, old ones having frequently proved injurious. M. Roques considers the use of it as hazardous. "Great caution would be required in distinguishing some states from *B. luridus*." Crypt. Eng. Its poisonous properties were known to the ancients. Pliny mentions that Annæus Serenus, the captain of Nero's guard, died from eating it. Roques, Hist. des Champs. Vén. 153.

Boletus albus, Pers., Champ. 233.
Suillus esculentus, crassus, Mich., Gen. Pl.

See *B. edulis*, to which the common name *Ceppatello buono* is applied among the Italians. It has the taste of a good mushroom. Roques, Hist. des Champs. 147.

Boletus felleus, Bull., Champs. 379; Pers., Syn. Found in woods, in August. S. C.! to Pa.

It differs by the red tint of the pulp from the edible Boletus, and is excluded from the number of the edible mushrooms. Roques, Hist. des Champs. Comest. 149.

Boletus pachypus, Fr. Thick-stemmed Boletus. Pine woods. July and Sept.

Taste and smell like that of *Agaricus Georgii;* the yellow, expressed juice distinctly acid. Crypt. Eng.

Boletus cyanescens, Bull. 369; D. C. } White-seeded Boletus.
" *constrictus*, Pers., Syn. 508. } Woody places. Sept.

Though in general we attribute poisonous qualities to those mushrooms which change their color upon being bruised, this should not be considered a rigorous rule, to be followed on all occasions. It is prudent, however, says Roques, to rank the azure Boletus among the suspected species. Hist. des Champs. Suspect. et Vén. 150.

Boletus luridus, Schoeff.
" *rubeolarius*, Bull.
" *bovinus*, Bolt.
" *perniciosus*, Roques, Hist. des Champ.
" *marmoreus*, Roques, Hist. des Champ. 141.
} Poisonous Boletus. Woods. Summer & Autumn. N. C. to Pa.

Very deleterious. M. Roques mentions a case which came

under his own observation, of its bad effects, which, happily, yielded to opium. Crypt. Eng. ii. 152.

Sowerby says that the *B. bovinus* (Brown Boletus of Sow. 175) is a favorite food with the Russians and Poles, who have many ways of pickling and cooking it, and that he had got some from thence pickled and highly spiced. Wade's Pl. Rariores, 178.

Roques says that the *B. perniciosus* exhales a strong nauseous odor, analogous to that of sulphur, and that it contains a very deleterious resinous principle. By experiments made upon animals, Roques states that they reject a cake in which this deleterious fungus is mixed, even in small quantities. Cats and dogs suffer from vomiting, diarrhœa, and, sometimes, convulsive movements. A cat, which had taken near an ounce, died in twenty-four hours; the intestines being inflamed, and marked by brownish-colored spots. Food with which this plant was mixed, given by Drs. Pouget and Pécharmant to another dog, produced suffering which lasted for some time, accompanied by a refusal of all kinds of nourishment. This animal seems endued with the power of overcoming the activity of these poisons; even the false orange and the bulbous agaric failing to produce a decided effect upon him.

A young surgeon eat two mushrooms seasoned with oil, the one being the ordinary *Boletus edulis*, with portions of the poisonous species. Some time after the repast, he felt intense heat in the throat and epigastric region, with vomiting, cough, and spasm, attended with much weakness. Being called to his assistance, Roques found the pulse hard and jerking, the skin burning, and the belly tumid and painful. He took a large quantity of sugar and water, and vomited a portion of the undigested mushroom. Opium was given in large quantity.

M. Roques recommends very highly the use of opium for the relief of pain following the use of the poisonous fungi, and to prevent the spread of inflammation.

Roques quotes from Prof. delle Chiage a case of a gentleman and his servant, who had eaten of these mushrooms, mixed with salad. The former fell down in a state of stupor, and his whole body was covered with pustulous eruptions. The use of acidulous food, refreshing drinks, or other remedies were employed, the membranes of the stomach becoming rapidly gangrenous. The domestic merely suffered from symptoms of irritation of the viscera.

The "Journal de Lot-et-Garonne" relates a case of an entire

family being poisoned by eating this plant. Roques, Champ. Comest. 145.

Boletus tuberaster, Jacq. (See *Polyporus*.)

Mérat, in his Supplem. vol. 1846, mentions this as the *Pietra fungaria* of the Italians. Jasparini, in 1840, presented a memoir to the Academy on the subject, in which it is described as an enormous fungus, made up of heterogenous vegetable productions, and proposing to call it *Micelithe fungifera*.

They employ in China a boletus which is called Fo-lin, for fevers and eruptive diseases, on account of its sudorific powers: it is given in doses of 3 grains in a cup of water. *Op. cit.* 116.

Boletus annularius, Bull., Champ. 332; D. C.
" *annulatus*, Pers., Syn. 303.
" *luteus* of Schaeff., Fung. 114.

De Candolle forbids the use of this plant as an article of food, in which Roques coincides. Hist. des Champs. 156.

Boletus cinereus, Pers., Syn. 504; Roques.
" *floccopus*, Fries, Syst. Myc. i. 373.
B. floc. N. C. to Pa. (H. W. R.)

Although Micheli states that it has been employed for food in Tuscany, yet Roques advises us to avoid it, as its character is not well made out. Hist. des Champs. Vén. 159.

Boletus aereus, Bull. 583; Roques, Champ. Comest. 127.

This Boletus, found around Paris, and in the North of Europe also, is thought by some to be superior to the *B. edulis*, on account of its delightful flavor. The celebrated author, says Roques, of the *Almanach des Gourmands*, prefers it to all known mushrooms; and he passes his life in the woods to collect these divine cryptogams (*ces divins cryptogames* à tête de nègre), as he calls them. The authors of the *Champignons Comest. et Vén.* and of the *Physiologie du Gout*, can scarcely contain their enthusiam in recounting the many admirable qualities of this delicious plant, among others, claiming for it the power of quickening the fancy, imparting superiority to the intellect, and a pleasing forgetfulness amid the gloom and despondency which follow adversity. "Que de bon mots, que d'heureuses saillies, lorsqu' on les servait tout fumants sur sa table! Il faut avoir reçu le feu sacré pour

comprendre un pareil enthusiasme," exclaims M. Roques, *op. cit. sup.* 128.

Boletus castaneus, Bull., Champ. 328; Roques.

Its taste is pleasant, and it is sometimes used as an article of food. Roques, Hist. des Champ. 147.

Boletus edulis, Bull., Champ. t. 60; D. C. Fl. Fr.
" *bulbosus*, Schoeff., 134.
" *solidus*, Sow.
" *bovinus*, With., 4, 273.
} Esculent

Boletus, called in Italy Ceppalello buono. Woods and pastures, under oaks; summer and autumn; N. C. to Pa.

Though neglected in this country, it appears to be a most valuable article of food, and is much eaten throughout Europe. It resembles very closely in taste the common mushroom, and is quite as delicate, and might be used with much advantage, as it abounds in seasons when a mushroom is scarcely to be found. Like that, it can be cultivated, but by a much more simple process, as it is merely necessary to moisten the ground under oak trees with water, in which a quantity has been allowed to ferment. This method is said to be infallible, and is practiced in France, in the Department des Landes. See Roques' Hist. des Champ. 16; Crypt. Eng; Mér. & De L., 635, 1; Descourt., Champ. Comest. Suspect.

This plant was well known among the Romans, and was called by Apicius, Fungus farnei.

M. Roques enters with more than ordinary zest into the descriptions of the various modes of preparing this plant for the table; and we refer the curious to the Hist. des Champs. Comest. et Vén. 136. "Voyez-ce gourmand, ce mycophile qui touche à la convalescence, et chez qui l'appétit se réveille!

Boletus squamosus, N. Roques, Hist. des Champs. Decayed trunks of trees, especially on ash.

Roques says that, as it changes color, he would advise that it should not be eaten. Berkeley, in the Crypt. England, 135, mentions, however, of *B. squamosus* of Huds., on authority of this writer, that it is eaten in parts of France.

In concluding his notice of this tribe of plants, M. Roques alludes to the general observations adduced by Paulet, to show

that all of them of which the pulp is green or blue, are very dangerous, and sometimes fatal. To prove this, he cites cases. Hist. des Champs. Vén. 161. Euripides wrote verses on the death of a mother and three children from eating the *Boletus* (Athen. *Deipnos*, t. 2, *op. cit.*).

Boletus Satanus. Found in N. Carolina (H. W. R.).

It is a poisonous species, the name having been given to it, Mr. Ravenel informs me, to "brand its diabolical attempt on the life of the botanist who first tried its eatable qualities."

Boletus larycinus, Berk. Larch Boletus. Sept.

Under the name *Boletus laryois*, the U. S. Disp., and Pereira, in his M. Med. ii. 46, notice a plant known as the *white agaric*, or *purging agaric* of medical writers. The nearest approach to this name is the one above, from the "Crypt. of Eng." The *Agaricus larycinus* appears to be an entirely different plant.

It has a sweetish, very bitter taste, and consists, according to Braconnot, of seventy-two parts of resinous matter, two of bitter extractive, and twenty-six of *fungin*, a nutritious, animalized principle, constituting the base of the fleshy substance of mushrooms. It contains also benzoic acid and various saline compounds. In the dose of four or six grains, it is said to act powerfully as a cathartic; but Lieutaud asserts that it may be given in the quantity of thirty grains or a drachm, without sensibly purging. Dict. des Drogues, i. 204. M. Andral has found it useful in checking the night-sweats of phthisis. De Haen had also used it for this purpose. He gives it in doses of eight grains, and gradually increases to a drachm during the day, without any observable inconvenience to the digestive functions (Journ. de Pharm. xx. 599). In this country it is scarcely employed, though we have met with it in the shops. U. S. Disp., 1223. Mérat & De L. also cite *B. laricis* of Jacq., Bull., Champ. 353, i. 206. Bouillon Lagrange has discovered in it benzoic acid, a free acid, an animal matter, ammoniacal salts, hydrochlorate of potash, sulphates, extractives, &c. Ann. de Chim. li. 75. This can be compared with that of Boulduc, in Mem. de l'Acad. des Sc. 1714, Dict. Some say that it arrests hæmoptysis. Under *Polyporus officinalis*, M. Richard gives the following deduction of M. Bisson (Archiv. Gén. de Méd., Janvier, 1833, p. 159). 1st. It may be employed with advantage in the nocturnal sweats from

phthisis; 2d. In doses of two, four, and five decigrams, administered for some days, it gradually dissipates them; 3d. In same doses, with extract of opium, it lessens the sweats and checks diarrhœa. Without opium, it ceases to be useful: Richard makes the *B. officinal* synonymous with *B. purgans* of Persoon. C. Elms. d'Hist. Mat. Méd. ii. 23. M. Andral has also employed the white agaric in cases like those of M. Bisson, having used from eight to sixty grains for the night-sweats with success, and without any thing untoward (see *B. larycis*, Jacq., Supplem. Vol. to M. Méd. de M. & de L., 117, and Journ. de Pharm. xx. 589; Bisson, Mém. sur l'emploi de l'agaric blanc contre les sueurs dans la phthisie pulm., Paris, 1832). M. Roques states, that, according to the analysis of M. Bouillon Lagrange and Braconnot, the *Boletus larycis* of Jacq., Miscell., contains a peculiar resinous substance, in great abundance and very acrid to the taste, also fungin, bitter extractive, animal matter, and different salts and free acids. He adds that, on account of its drastic properties and a very concentrated odoriferous principle, it is classed as a poison. When fresh, the emanations from it are dangerous, and taken in moderately small doses it acts violently on the digestive canal, and may produce serious consequences. The ancients attributed heroic properties to the white agaric. Vogel regarded it as a mild evacuant, given in doses of a drachm in six ounces of emulsion; but it acts in an uncertain manner, sometimes provoking vomiting, at other times alvine evacuations, and imparting a degree of heat and spasm to the whole digestive canal. Champig. Comest. et Vén. 117.

Boletus scaber, Bull., Champ. 319.
" *bovinus*, Schoeff., Fung. 104.
" *procerus*, Bolt., 86.
" *aurantiacus*, Bull., 489; Berk., Crypt. Eng.
} S. C.! to Pa.

This is eaten in some of the provinces of France. M. & De L., i. 635.

Roques says it can be safely eaten while young, even in large quantity. It has neither the taste nor perfume of the true mushroom. Hist. des Champs. Vén. 152. He describes *B. aurantiacus* as a variety, which is eatable.

B. scopetino.

Eaten in Italy. This plant is figured by Micheli, t. lxx. F. 3.

Boletus hirsutus, Bull.

M. de Lastegrie extracted from this a brilliant yellow color. Bull. de la Soc. Phil. i. 23. It is supposed that the richest colors may be extracted from some species. De Cand., 342; M. & De L., Dict. de M. Méd. ii. 205.

Fistulina hepatica, With. " *buglussoides*, Bull. " *buglossum*, Fl. Dan. 1039. *Boletus hepaticus*, Schoeff., t. 116; Roques. *Hypodris* " Pers., Myc. Eur.; and Roq.	Juicy Fistulina, Hypodrys, Beef-Tongue. On oak, ash, walnut, beech, and chestnut; Aug. and Oct.; *F. hepat.* of Fr.; in S. C.! to Pa. (H. W. R.)

See Dr. Greville's complete account of this curious fungus, in his Scot. Crypt. Flo. It is much esteemed in Austria as an article of food. The taste is rather acrid, but resembling somewhat that of *A. campestris;* but it is rather tough. It attains sometimes an enormous size. Crypt. Eng.; M. & De L., 635, 1; Persoon, Champ. Comest. 160.

Bolton says it is of the esculent kind, and that it tastes like lamb's flesh; "but how far it is to be trusted he is doubtful." Sowerby observes, that it tastes like our common muskmelon, and some reckon it nearly as good. "It is replete with a blood-colored fluid." Wade, Pl. Rariores, 177. M. Roques, in his Champ. Comest. et Vén. speaks very highly of this plant as an article of food. It is highly prized in many parts of Europe. *Op. cit.* 110.

Hydrium imbricatum, L. " *squarrosum*, Nat. Syst. " *squamosum*, Roques, Hist. des C.	Scaly Hydrium. Woods; aut.; N. C. to P.

This plant, Roques says, has similar properties with the *H. repandum.*

Hydrium violaceum, Thore, Pers. Champ.

Dr. Thore testifies to the pleasant taste and odor of this species, although no experiments have been made with respect to its alimentary qualities. Roques, Hist. des Champ. 105.

Hydrium album, Pers., Champ. *Steccherino, o dentino bianco*, Mich., Gen. Pl.	October and Nov.

This is a fine large species, much employed in Italy, and

especially in Tuscany, as an article of food. Champ. Comest. et Vén. 106.

Hydrium auriscalpium, L. Schoeff. Hairy Stalked Hydrium. Grows on cones of fir, and regarded in Tuscany and Gascony as one of their best species. M. Roques, Hist. des Champ. 106.

Hydrium repandum, L., Suec. } Common Hydrium. Woods;
" *flavidum*, Schoeff. } autumn; Mr. Ravenel has seen specimens from S. C., N. C., and Ga.; grows in Pa. also.

The common hydrium is much used for food on the Continent, especially in Austria. The taste of the fresh plant is at first sufficiently agreeable; but it leaves an acrid, pungent sensation. The acrid qualities, however, seem to be entirely dissipated by heat. Crypt. Eng. vol. ii. 156. In reference to the *H. repandum* of L., Suec., M. Roques ascribes the observations of M. Descourtils, respecting its supposed injurious properties, to have been the result of his eating a different plant; this species, he says, being so commonly used in France, Germany, and Italy. This plant is dried by the natives of these countries for winter use. Champ. Comest. et Vén. 105.

Hydrium erinaceus, Bull. } Hedge-
Hericium erinaceum, Pers., Myc. Eur. 153. } Hog Hy-
" *commune*, Roques, Hist. des Champ. } drium. On trees, especially oak; "very rare." Mr. Ravenel informs us that he finds *H. erinaceus* of Fr. in St. Johns, S. C.; grows in Pa. also (Schw.).

Esculent, according to Trattinnick and Roques.

Hydrium cyathiforme, Schoeff., Fung. 139. } Grows in
" *concrescens*, Pers., Syn. 556. } woods; Sept. and Oct.; N. Carolina.

The flesh is fibrous and coriaceous, and is used as food.

Hydrium coralloides, Scop. } Coral Hy-
" *ramosum*, Bull. } drium. On fir,
Hericium coralloides, Pers. and Roques' Hist. } beech, ash; "very rare;" found by H. W. R., in St. Johns, S. C., and Ga.; grows in Pa.

This, and the foregoing, are said to be as good food as the common mushroom. Crypt. Eng. ii. 157; Roques, Hist. des Champ. 108.

Hericium capût Medusæ, Pers., Comm. Clav.		S. C.! to Pa.
Hydrium " "	D. C. Fl. Fr. 281.	
Clavaria " "	Bull., t. 412.	

The taste of this is very agreeable, and it is much eaten in Italy, and to a certain extent, in France. Roques, Hist. des Champ. 107.

Clavaria cinerea, Bull.

According to M. Fries, *C. cinerea* of Greville, though very dissimilar in appearance, is a variety of the *C. coralloides*.

It is much employed as an article of food in Normandy and Franche Comté. All the clavarias are eatable, except one or two of a coriaceous nature, or which are too small to be cooked. Roques, Champ. Comest. 83.

Clavaria amethystina, Bull.; Nees.		Amethyst Clavaria. Among leaves under trees; Aug. to Sept.
Ramaria "	Holmsk.	

The plant is eatable, and very much prized. Roques, Hist. des Champ. Comest. 85; Hooker's Crypt. England, 174.

Clavaria fastigiata, Linn., Sp. Pl.	
" *pratensis*, Pers. and Berk. Crypt. Eng.	
C. pratensis, Fr. in N. Carolina.	

This also is alimentary, and much eaten in Germany under the name *Ziegenbart*. Roques, Hist. des Champ. 85.

Clavaria botritis, Schoeff., Fung. t. 176.	*Clav. botritis* of P. in S. C. (H. W. R.)
" *plebeia*, Jacq., Misc.	

Commonly used in parts of Europe as an article of Food. Roques, Champ. Comest. 85.

Clavaria crispa, Jacq., Misc. Austr. 2, 100.

This clavaria is eaten in Siberia and Alsatia. Roques, Champ. Comest. 85.

Clavaria pistillaris, L.; and Bull., Champ. 244.
" *Herculanea*, Sow.

Large Brown Clavaria. Shady woods; *C. p.*, Fr. N. Carolina.

Eaten in northern countries. Roques.

Clavaria coralloides, L. and Bull.
" *flava*, Larber.
Coral Clavaria.

The flesh is white, coriaceous, and nourishing. Richard, Elems. d'Hist. Nat. Méd. ii. 20. It furnishes a very healthful and digestible nourishment. All the varieties are used as articles of food; and it is preferred, as it bears no resemblance to the poisonous fungi. In countries where the plant grows in abundance, they preserve it for winter use by slight boiling, and then macerating in vinegar. Roques, Champig. Comest. et Vén. 83.

Bulgaria inquinans, Pers.
Peziza nigra, Bull.
Pitch Black Bulgaria. On old stumps and trees. *B. inquinans*, Fr.; N. C. to Pa.

M. Richard states, that the *P. nigra* furnishes, on chemical analysis, bassorine, gum, and fungic acid in a free state (from Ann. de Chim. Méd. 79, 87). Elems. d'Hist. Nat. Méd. ii. 37.

Morchella deliciosa, Fries, Syst. Mycol.
Fungus cavernosus, Weinm., Herb. 333.

This is regarded as even more sapid and delicate than the common Morelle. Roques, Champ. Comest. 91.

Morchella semilebra, Dec., Fl. Fr.
Helvella hybrida, Sow., Fung.
Phallo-boletus esculentus, Mich., Gen. Pl.
Phallus esculentus, V. 2. With.
Long-Stemmed Morelle. Woods; spring.

This plant has a pleasant taste, and resembles the eatable morelle. It is much used in various parts of Europe, being put up in olive oil to render it more tender. Dried with care, the perfume of the fresh plant is well preserved. M. Roques, in his Champ. Comest. et Vén., with the zest of an enlightened gastronome, instructs us in the most approved ways of preparing and dressing these and other fungi. See *op. cit. sup.*

Morchella esculenta, Linn.
Helvella " Sow. } Common Morell. Woods
Phallus " Linn., Suec.

and orchards; found in St. Johns, by H. W. R.; grows also in Northern States.

Esteemed everywhere as a valuable article of food. Crypt. of England, 182. They are sometimes dried for winter. Richard, Elems. d'Hist. Nat. Méd. Dried, it will keep for many years. Wade's Pl. Rariores, 182. M. Roques is quite enthusiastic in his praise of this delicious mushroom. Champ. Comest. et Vén. 91.

Helvella Acaulis, Pers.

Employed in Russia, in strumous engorgements, lymphatic tumors, and ulcers. Pallas, Voyage, 1, 51; M. & De Lens, iii. 474.

Helvella crispa, Scop.; Fries, Syst. Myc. } Pallid Helvella.
" *mitra*, Roques. } Woods; autumn;
" *esculenta*, Pers. } S. Carolina!

Esculent. Esteemed as an article of food. Eaten in Provence. De Cand., Essai; Hooker's Crypt. Eng.; Mérat & De Lens. All the varieties are eatable. Roques, Hist. des Champ. 86.

Helvella elastica, Bull., Champ. 242.
" *albida*, Pers., Syn.
" *fuliginosa*, Schoeff.

This fragile and transparent species is much valued as an article of food. Roques, Hist. des Champ. 87.

Vibrissea truncorum, A. & S.; Fr. } Golden Vibrissea. N.
Leotia clavus, Pers. } Carolina. Schw.

According to Fries, when taken from the water and exposed to the rays of the sun, though at first smooth, it is soon covered with white, geniculated filaments, which start from the hymenium, and have an oscillating motion; while this takes place, a strong scent of garlic is emitted. Crypt. Eng.

Dacrimices moriformis, Smith. } Mulberry Dacrimices.
Tremella " Eng. } Grows in S. C. (H. W. R.)

When dried between paper, a violet stain is communicated to whatever this plant touches. Sm., *l. c.*

Spermœdia clavus, D. C. Fr. *Sphacelia segetum*, Kl., Fung. Germ. "*Secale cornutum*" of Pharm. *Acinula clavus*, Lond. Pharm.	Common Ergot. "Diffused throughout the whole of Great Britain." W. S. A.

"Produced within the seeds of various gramina, as secale, agrostis, dactylis, festuca, elymus," etc.

Not less celebrated on account of the dreadful diseases which it produces, when abounding among corn, than for its invaluable uses as a medicine, arising from its extraordinary specific action on the uterus. It appears to be only a diseased state of the grain, and has scarcely a sufficient claim to be admitted amongst fungi as a distinct genus. The external coat is subfarinaceous. Crypt. Eng.

Much discussion has arisen as to whether ergot is a morbid growth, a parasitic fungus, or the seed perverted in its nature by a fungus. De Candolle believed it to be the second; and M. Le Veille, in a Mem. published in the Ann. Linn. Soc., Paris, 1826, concurred in the third opinion respecting it. Mr. Quekett, of London, has investigated the subject with much care; and he confirms the general view of the nature of ergot entertained by M. Le Veille, but he is led to a different conclusion as to the character of the parasitic plant. He believes that the germs of the fungus (*Ergotætia abortifaciens*) emit their filaments through the tissue of the ergot, when young and tender, and that, as this increases, it is made up partly of the diseased structure of the grain, and partly of the fungous matter. This microscopic fungus is found in various other parts of the plant; and it is asserted that the sporidia, or white dust, upon the surface of ergot, if applied to the seeds of certain graminaceæ before germination, or sprinkled in the soil at the roots of the plants after they have begun to grow, will give rise to ergotized fruit (see Am. Journ. Pharm. xi. 116, 237; Med. Exam. N. S. i. 62; U. S. Disp. 313; see besides, Smith's Inquisitio in Secale Cornutum. Commentatio præmio, &c. Annalized in Annalen der Pharm. i. 129; also Bauer, in Linn. Trans., 1840, xxxiii. 453; Wright, in Edinb. Med. and Surg. Journ. lii. 306). It is stated that the substance is much more energetic when collected before than after harvest. It should not be collected until some days after it has begun to form; as according to M. Bonjean, if gathered on the first day of its formation, it does not possess the poisonous properties

which it exhibits when taken on the sixth day (Pharmaceut. Trans., 1842, Jan., from Journ. de Chim. Méd.).

The ergot attacks rye chiefly in damp seasons, and in moist, clay soils. According to the statistical researches of the *Abbé Tessier*, who was deputed by the Med. Society of Paris, to investigate the *cause* of the extraordinary prevalence of the ergot, in 1771, in the district of Sologne, in France, he attributes it to *dampness* (Mém. sur le Mal du Seigle appellé Ergot, Hist. de la Soc. Roy. de Méd. i. 427). The same connection between moisture and the development of the ergot has been "repeatedly traced" in other parts of France, as well as in Germany (Robert's paper, in Rust's Magazine, 25, 20). According to the experiments of Wildenow, it may be brought on at any time by sowing the rye in a rich, damp soil, and watering the plants exuberantly in warm weather. (Hecker, i. 240); Christison, 712.

Bread which contains it is defective in firmness, liable to become moist, and cracks and crumbles soon after being taken from the oven (Robert, in Rust's Magazine, 28).

From the experiments of Drs. Wright, Wiggers, and Taddei, ergot has been found injurious to animals. Its first effects in them are giddiness, dilated pupil, and palsy, and subsequently diarrhœa, suppurating tumors, scattered gangrene, and "sometimes dropping off of the toes." Sparrows were killed by six grains in six or seven hours (Taddei, An. Univ. di Med., 1839, iv. 12). From Dr. Wright's experiments, it appeared to have no power in inducing miscarriage in the lower animals (Edinb. Med. and Surg. Journ. liii. 29). Christison, on Poisons. Prof. Fee, as late as 1843 (in the Mem. de la Societé de Mus. d'Hist. Nat. de Strasbourg), has thrown much light on the structure and growth of ergot. "Cette production est à la fois formée par le grain malade et par un champignon parasite qui en occupe le sommet." Richard.

Ergot, analyzed by Vauquelin (Ann. de Chim. et de Phys. 3, 337), gave two coloring matters, one of a yellow color, soluble in alcohol, the other a violet, analogous to that of the orseille, but insoluble in alcohol; 2d. An abundant oily substance; 3d. An undetermined acid, probably phosphoric; 4th. Free ammonia; 5th. A very abundant vegeto-animal substance, prone to putrefaction; and therefore neither amadou nor sugar nor mucilage nor gluten. The grains of ergot, by later analysis of Wiggers, furnish a peculiar heavy oil, a peculiar fatty matter, cerine, *ergotine*, osmazome, a peculiar sugary substance (*mannite*, Liebig), a

gummy, extractive matter, albumen, fungin, and phosph. of lime and potash. Ergot does not contain any alkaloid. Its action on the uterus is due to the "*ergotine*," see M. Bonjean's investigations. Richard, Elems. d'Hist. Nat. Méd. 1849. See also, M. Robin's later investigations in 1853.

Phallus impudicus, L. } N. C. to Pa. Schw.
" *fœtidus*, Sow. }

From a paper by Dr. Radley, in London Lancet, we learn that the *Phallus* was an object of superstitious worship in the earlier ages of the world, in India and in Egypt; mentioned, also, by O'Brien in his elaborate work on the "Round Towers of Ireland." Dr. Radley desires to impress upon his readers that the plant possesses "great remedial power to allay pain in the lumbar region," which he considers equal to that of morphine. To Mr. Hele, surgeon of Ashburton, he is indebted for the first hint of the value of this species of fungus as a diuretic in dropsy, which Mr. R., upon experiment, could not confirm, though it led him to ascertain its use in allaying renal and other pains in the loins. He reports four cases in which he employed the tincture of the plant, in teaspoonful doses, several times a day. The secretion of urine did not increase under its use. In case 2d, he gave twenty grains of the powder made into as many pills, with thin mucilage of acacia—one taken thrice a day—producing a good deal of red gravel with the discharge, which he attributes to its allaying spasms of the kidneys. In case 3d, there was no diminution of the anasarcous swelling, though a painful affection of the nerves springing from the lumbar regions forming the anterior crural was relieved, and affording the patient the most signal ease.

In case 4th, one half the same quantity taken in the same way was equally serviceable.

He advises that it be dried on an iron plate, which deprives it of the very disagreeable and nauseous odor. See paper in London Lancet by W. C. Radley, M. D.

Phallus fœtidus, Lam. } Stink Horn—Stinking Morel.
" *impudicus*, Linn. }

In curious structure, says Greville, in his Scottish Flora, iv. 213, it yields to none of its order. Bulliard affirms that the volva, in bursting, will break a glass vessel in which it is inclosed. In six hours it attains an elevation of six inches. Flies are so fond

of the slimy matter, that it is always greedily devoured. The Flora Londinensis states that they are not attracted by it to deposit their eggs, as in the *stapeliæ*. Greville confirms the assertion of Withering, that "such as have the courage to smell this matter closely will find it much less disagreeable than at a distance, for it then seems to have a slight pungency, like that of volatile salts. It is used in Holland to make poultices. Greville, 4, 213.

Phallus caninus, Huds. Fr. } Red-headed Stink Horn.—
" *inodorus*, Sow. } Woods and hedges. Autumn.

This, like *P. impudicus*, when placed in the egg state in a box over night, if sufficiently advanced, will be found perfectly developed in the morning.

Tremella auricula Judæa, L. } Jew's ears. Grows
Peziza " " L., Sy. Veg. } on trees.

The Russians make a kind of *eau-de-vie* of this plant by its power of fermentation. Discours sur la Botan. by Troufflot, Prof. in Central School at Nievre, 1794. Mérat suggests that a similar use might be made of many more mushrooms. Supplem. vol. 1846, p. 712.

Exidia auricula Judæa, Linn. } Jew's ear. S. C.
Peziza " " Linn., Sy. Veg. } et ubique. H. W. R.

It is stated in Mér. & De L. that the Russians make *eau-de-vie* of the *Pez. auric.* Linn. Dict. de Mat. Méd. ii. 205.

Tuber cibarium, Sibth.; Fr., Syst. Myc. } Mr. Ravenel
" *bumale*, Mich., Gen. Pl. } has not seen
Lycoperdon tuber, Linn., Spec. 1653; Roques. } it in S. C.;

though in a letter to us he states that Schweinitz inserts it in his Syn. U. S. Fungorum upon the authority of Dr. Muhlenberg. "He says he was told there was an old hunter who had a dog trained to find them in the neighborhood of Narraganset, Pa."

Buried in the soil of woods, especially beech woods.

There are several varieties, differing in color, of which the black is the most celebrated. They grow together in groups. Those growing near the oak are the best, and are best collected in December.

Truffles are much sought for as a luxury, and are hunted by dogs trained for the purpose, or by swine. Nees Von Essenbeck

relates an instance of a poor, crippled boy who could detect *truffles* with a certainty superior even to that of the best dogs, and so earned a livelihood. They have been successfully cultivated by Bornholz. See Roques' Hist. des Champ. They are preyed upon by a species of *Leiodes*. Crypt. Eng. 228. According to Bouillon-Lagrange they contain an acid liquor, a black oil, a heavy matter, albumen, carb. of ammon. Cit. in Roques' Hist. des Champs. 389. The Romans sent to Africa for truffles.

> " * * Tibi habe frumentum, Alledius inquit,
> O, Libye! disjunge boves, dum tubera mittas."
>
> *Juv., Sat.* v.

The Count de Noé has communicated to the Horticultural Society a plan by which we obtain them by planting the skins of the truffles, which are followed in the second season by the plants.

Tuber moschatum, Bull., Champ. 479; D. C., Fl. Fr. Musk-scented Truffle. Grows beneath the soil.

When fresh the flesh is soft, and it exhales a strong odor, like musk. Although it may be used without inconvenience, yet it is not very agreeable. Roques' Hist. des Champ. 416.

Tuber griseum, Pers., Syn. 127; Roques' Hist. Truffle Grise, De Borch. Found principally in Piedmont and in France.

It possesses a fine delicate taste; and some amateurs prefer it to the black truffle of Perigord, on account of the lively and penetrating odor which it exhales. George IV. and Louis XIV. are both said to have been very fond of this species.

Tuber niveum, Desfont., Fl. Atlant. Q. 436.

This plant is very delicate, and is good as an article of food.

Lycoperdon giganteum? Batsch. " *Proteus.* " *pusillum.* *Bovista gigantea*, Nees.	Large puff-ball, sometimes many feet in circumference. N. C. to Pa. Schw.

It was formerly used as a styptic; and recently M. Chatenay, a pharmaceutist at Berne, has found the powdered plant to arrest hæmorrhages on the spot by its being inhaled into the lungs. The plant also possesses a narcotic quality; and hence the smoke was employed for stupefying bees, the plant having been prepared by drying in an oven.

Dr. Toll employs a syrup made with it, to arrest the pains

caused by renal calculi (Abeile Méd. 1845). Supplem. vol. to Mér. & De Lens, 1846, 442; Pereira, Mat. Med. ii. 47. In a work on homœopathy, by Dr. Beauvais, 639 symptoms are said to be produced by *L. bovista.*

Plenk (Bromatologia, p. 88) mentions that it is used as an article of food in Italy. When its substance commences to soften, it becomes dangerous. Roques' Hist. des Champs. Vén. 374; M. & De L., Dict. de M. M. i. 213. Fries mentions that in individuals injured when very young by the reaper's sickle, a pale, membranaceous web is formed from the *capillitium* which fills up the wounds, forming septa, which, if the wounds are numerous, divide the cavity into chambers; and from this he infers the mode in which the septa in scleroderma are formed—"from the contraction of the inner mass, and in consequence the insinuation of delicate white webs in the interstices formed." Crypt. Eng. This may teach us with respect to the origin of vegetations and malignant growths in man.

Lycoperdon cœlatum, Bull.
" *bovista*, Pers., Syn.
" *gemmatum*, Schoeff., Fung. 189.
} Embossed puff-ball. S. C.!

This is sometimes converted into amadou. M. & De L., i. 213.

Lycoperdon corium, Guers.

This plant is sometimes used as amadou.

Lycoperdon solidum, L.

In Virginia, according to Clayton, a sort of bread is made of this plant, which is called tuckatroo (Flora Virgin. 176). Supplem. vol. to M. & De Lens, 442.

Lycoperdon carcinomale, L.

Used at the Cape of Good Hope in cancer (Thunberg, Diss. Acad. i. 274). M. & De Lens, iv. 165.

Scleroderma verrucosum, Bull.; D. C.
Lycoperdon " Bull.
} S. C.! to Pa. Schw.

This is said to be aphrodisiac. According to Vaillant, it is fatal in its effects when taken internally. The powder keenly irritates the eyes and nose. Roques' Hist. des Champs. Vén. et Suspects, 375.

Elaphomices granulatus, Alb. and Schw. } *E. cervinum.*—
Scler. cervinum, Persh. and Roques. } In Pa.

It is stated in Mér. & De L. that the *S. cerv.* is an aphrodisiac. It exhales a very strong odor, like that of the spermatic fluid; and charlatans have prepared a tincture which is vaunted as a remedy for impotence.

Sphæria entomorrhiza, Dicks.; Fr., Syst. Myc. Round-headed insect Sphæria. On dead larvæ and pupæ of insects. "Very rare." N. C.

My friend, H. W. Ravenel, Esq. of St. Johns, S. C. has in his collection several fungi, all of which are attached to the bones about the neck of the insects, generally a caterpillar or common white grub. From a letter just received (April, 1852) he informs me that he has discovered three new species of these insect sphæriæ in St. Johns, S. C. under the following names: *S. insectivora*, Rav.; *Hippocræ Ravenellii*, Berk. and Curt.; and *S. Santensis*, R.

The filament of this species, Mr. Berkley says, was found by Dr. Hooker attached to a caterpillar—in his own specimen they were attached to a chrysalis. The *perithecia* were completely sunk in the flesh.

Reticularia maxima, Fr. } Large *Reticularia*. On
Lycopodium echinoformis, Sow. } trunks of felled trees. Pa.

A quantity of the sporidia subjected to a considerable heat, by Dr. Wollaston, formed a phosphoric glass. Crypt. England.

Clathrus cancellatus, Linn., Spec. 1648; Roques, 371. }
" *volvaceus*, Bull. 441. }
" *ruber*, Mich. Gen. Pl. }

We observe in the Crypt. England that all the species of Clathrus are under Trichia.

The flesh of this singular plant is very fœtid and deliquescent, exhaling an odor so infectious as to force naturalists to purify the chambers in which it is carved. It must be placed among the deleterious species.

A young person having eaten a bit of it, after six hours suffered from a painful tension of the lower stomach, and violent convulsions. He lost the use of speech, and fell into a state of stupor, which lasted for forty-eight hours. After taking an emetic he threw up a fragment of the mushroom, with two worms, and mucus tinged with blood. Milk, oil, and emollient fomentations, were then employed with success.

Aspergillus glaucus, Lk.
Mucor " Linn. Sp. Pl. } Blue mold. S. Carolina.! On various decaying substances, as lard, bread, cheese.
Monilla glauca, Pers.

One of the most common molds, and always unacceptable, except upon cheese, which is valued when attacked by it. Crypt. Eng. ii. 340.

Pennicilium glaucum et roseum.

These varieties of mucedonous vegetables are found to be developed in bread which proves poisonous; their presence is supposed to account for its deleterious effect. The effects produced by rye bread in which these were found, were redness of the features, dry tongue, frequent weak pulse, violent colic pains, urgent thirst and headache, and subsequently vomiting and diarrhœa, alternating with great exhaustion and sleepiness (Guérard, in Annales d'Hygeine Publique, xxix. 35). Christison on Poisons.

Oidium erysiphoides, Fr.
Sporotrichium macrosporum, Grev., Fl. Edin. } Mildew Oidium. On leaves of various plants. Common.
Torula botryoides, Corda.

Very destructive to peach trees, cabbages, &c. In the former case its progress is sometimes stopped by powdering the leaves and fruit with sulphur. Crypt. Eng.

Podisoma macropus, Schweinitz. Grows on cedar (*Juniperus*) in St. John's, Berkley, S. C. Cedar apple. April.

This plant, which exists in the form of a ball on cedar trees, is supposed to possess considerable power as an anthelmintic.

Fusisporium atrovirens, Berk. Dark green Fusisporium. Summer.

This is at least one cause of the mildew which is so destructive to onions just before they arrive at perfection.

Torula cervisiæ, Turpin. } Yeast.
Mycodema " Desmaz.

Turpin, who spent a night in a brewery for the purpose of examining the vesicles, found that on each two buds are developed, each of which becomes a vesicle, which remains attached to the parent one. If these are organized beings, it has been suggested that the process of vinous fermentation is the immediate consequence of their vegetation. "When placed in a saccharine fluid they are supposed to grow at the expense of the sugar, which is

partly converted into alcohol, while the plant gives out carbonic acid. According to this view, therefore, fermentation is the consequence of a vital act." Pereira, M. M. It is administered internally, as a tonic and antiseptic, in typhoid fevers. Dr. Stoker (*on continued fever*, 121, Dublin, 1829–30) states that it usually acts as a mild laxative, improves the condition of the alvine evacuations, and is more effectual in removing petecchiæ and black tongue than any other remedy. It is admissible where cinchona and wine cannot be given, on account of the inflammatory symptoms. Dose, two tablespoonfuls every third hour, with an equal quantity of camphor mixture. Yeast poultices are well known as antiseptics. Enemata of yeast and assafœtida are said to be effectual against typhoid tympanitis. Pereira, M. M. ii. 58.

Puccinia graminis, Pers.
Uredo frumenti, Sow.
P. arundinacea, Johns., Fl. Berw.
} Mildew. S. C. et ubique. H. W. R.

Most injurious to corn.

Uredo carbo, De Cand.

It attacks the ova of plants and the glumes of the graminæ, and prevents their development (Mem. de la Soc. Roy. de Méd. 178, 364). N. E. Tscharner, Memoir on Rust, in the Mém. de la Soc. Econ. de Berne, 1764, 27; Chantrais' Obs. upon mildew and its acid, in Soc. Philom. viii. 86; Res. upon the cause and progress of blight, in Mem. de Mith. et de Phys. iii. 68, from M. & De L. Mat. Med. vi. 809.

Uredo segetum, Pers.
Ustilago " Ditm.
Reticularia " Bull.
} Smut. On wheat, barley, oats, etc. S. C. et ubique. H. W. R.

Very common and destructive.

Uredo caries, Dec. Grev., Fl. Edin.
" *sitophila*, Ditm. St. Deutsch.
Cœoma sitophilum, Lk.
} Bunt. On wheat.

Very common.

It is exceedingly fetid when crushed. Highly injurious, as the whole sample is spoiled by the bunty corn. Crypt. Eng. The seeds, if planted, will reproduce it. It is not injurious to the healthof man; as M. Cordier took, one day, one drachm in a glass of water, and, the day after, three drachms, without experiencing any injurious effect (Journ. Gén. de Méd. lxxxvi. 98). M. & De L., Dict. de M. Méd. vi. 809.

According to the observations of Mr. Kirby (see Linn. Trans. vol. vi.), the gentlemen of England, to guard their seeds against the encroachment of the *pepper brand* or *bladders*, dress them with a lixivium of wood-ashes and urine, salt and water, lees from the soap-boilers, urine and cheese-whey; and he believes that all the farmers dry their seeds with fresh-slacked lime. From whence it would appear that the disease originates from the adhesion of the seed or dust of the *brand* to the seed of the wheat. Fresh slacked lime will sometimes injure the seeds. Old wheat used for seed, it has been observed, is not subject to the brand.

For smut, Mr. Gordon recommends, in the Bath papers for 1799, vitriolic acid. He suffers the seeds to remain in the steep for twenty hours, using one gallon of acid to thirty of water.

Uredo rubigo, Dec. } Rust. On grasses and corn. S. C.!
Cœoma " Lk. } et ubique.

Common, but not so injurious as the true mildew, *Puccinia graminis.*

Uredo suavoleus, Pers. } Sweet-scented Uredo. "On *Cnicus arvensis.*
Aec. cardui, Sow. }

Flies, according to Sowerby, often gorge themselves with this plant, and are killed. Crypt. Eng.

Mucedo.

The genera *Mucedos*, *Mucors*, *Byssi*, &c., constitute mildew, mold, &c.

It is deserving of particular inquiry, how it is that the growth of the minute fungi are prevented by any kind of perfume or essential oil. Even the small amount in Russia leather being sufficient. Ed. P. J. 8, 34; Lind., Nat. Syst. 333.

Rhizomorpha.

I am unable to ascertain where it should come.

This genus, which vegetates in dark mines, far from the light of day, is remarkable for its phosphorescent properties. In the coal mines near Dresden the species are described as giving those places the air of an enchanted castle; the roofs, walls, and pillars are entirely covered with them, their beautiful light almost dazzling the eye. The light is found to increase with the temperature of the mines. Ed. P. J. 14, 178; Lind., Nat. Syst. 333.

Achorion Schonleinii.

We do not know where to arrange this genus, belonging to

Hyphomicetes of Richard's Elems. d'Hist. Nat., which contain species which the recent discoveries of Lebert and Robin have shown to exist in certain cutaneous diseases. Richard says that beyond any doubt certain cryptogamia do grow on living men and on animals; and he alludes to that important work, "Des Végétaux qui croissent sur les animaux vivants, par le Docteur Ch. Robin." 8vo. avec planche. Paris, 1847. See last and enlarged edition, 1853.

This plant, figured by M. Lebert (Physiol. Pathol. ii. 477, 1845), forms the filaments or tubes in Favus or scald-head. *Porrigo scutulata*, M. Charles Robin says, depends upon the growth of the same genus, which he names *A. Lebertii*. *Plica Polonica* is also made up of two distinct vegetable growths, not yet named; the one attacking the hair itself, the other the substance which agglutinates them. M. Gruby, who has made some curious researches upon the subject, has described under the name *Microsporum Audouini*, the mushroom which causes *Porrigo decalvans*, and which has been called for this reason *Phyto-alopecia*. According to the same author, *Mentagra* is equally owing to a fungus growth. So also *Muscardine*, which produces such ravages in the silk-worm establishments, is caused by the growth of *Botrytis Bassiana*. Some of the diseases of mucous membranes, muguet for instance, are of parasitic origin; some are fungous, others confervoid. Richard, Elems. d'Hist. Nat. Méd. ii. 18; see also two papers of Dr. Brown, of Philadelphia, in Charleston Med. Journal and Review, 1851, and Jos. Leidy, M. D., in Trans. of Smithson. Institution.

Including those enumerated above, ten Cryptogamia of the skin are described by Robin in his recent work: *Tricophyton sporuloides*; *Tricophyton ulcerum*, Lebert, in the crust covering an atonic ulcer of the leg. *Microsporon furfur*, found in *Pityriasis versicolor* of Willan. We will also cite from Robin, the list of Fungi growing on the mucous membranes, or in the contents of cavities lined by mucous membranes: 1. *Cryptococcus cerevisiæ*, Kutzing (Syn. *Torula cerevisiæ*, the yeast plant) in the bladder, stomach, intestines, &c. 2. *Merismopædia ventriculi* Robin (Syn. *Sarcina*), in the stomach, intestines, &c. 3. *Leptothrix buccasis*, Robin (Syn. Alga of the mouth). 4. Oscillaria (?) of the Intestines, Farre. 5. *Leptomitus urophilus*, Montaigne (an alga described as forming in the urine. It has as yet been scarcely studied). 6. *Leptomitus (?) Hannoverii*, Robin (alga found by Hannover in the pharynx and œsophagus). 7. Leptomitus (?) of the uterus. Leptomitus of the uterine mucus. 9. Leptomitus of the eye. 10. *Oidium albicans* Robin (Syn. Cryptogam of diptheritis and aptha), Apthophyte (of Gruby). 11. Fungus of the Lung, Bennett. 12. Fungus in the discharge of glanders.—Braith. Retrosp. from B. & F. Med. Chirurg. Review.

REPORT ON THE EPIDEMICS

OF

OHIO, INDIANA, AND MICHIGAN,

FOR THE YEARS

1852 AND 1853.

REPORT ON THE EPIDEMICS OF OHIO, INDIANA, AND MICHIGAN, FOR THE YEARS 1852 AND 1853.

The Chairman of the Committee on the Epidemics of Ohio, Indiana, and Michigan, appointed as his assistants, Z. Pitcher, M. D., of Detroit, Michigan, N. Johnson, M. D., of Cambridge city, Indiana, D. Tilden, M. D., of Sandusky, Ohio, and J. Adams Allen, M. D., of Michigan.

The materials which have been collected for this Report are extremely meager, compared with what they might have been, had the circular issued by the Committee been responded to generally. This neglect has been caused, principally, by the great indisposition on the part of most of our profession to record the various circumstances in reference to diseases which are constantly transpiring before them. The fact, also, that we have had no widely-prevailing epidemic of a severe character in this district, may be another reason why but few reports have been made. The Committee has reason to believe that the past two years have been generally healthy, although this information has not reached us, except in the instances reported, in a regular form from the different sections of the district. Reports of a negative character, however, are of nearly as much importance as those which give an account of the existence of particular diseases, and should not be omitted in a medical history of any country. Facts of a negative character may not possess the same direct interest in reference to the study of any particular epidemic; but at the same time, may have much when considered in connection with surrounding circumstances. It is a matter for congratulation that the widely-spread choleraic epidemic influence, which has prevailed over the greater part of our country for the last three or four years, is subsiding; although

the disease has occasionally manifested itself within the past year, with its usual malignancy, in localities where some apparent or hidden cause has coöperated in developing it. The absence of a registration law entirely prevents an exact report in regard to the causes and amount of mortality. The sanitary condition of the district cannot, therefore, be ascertained with any great degree of accuracy; although we may arrive at an approximation to the truth.

Ohio.—A brief general description of the topography of this State may possess some interest. In giving it, the Committee will avail itself freely of information furnished by the great work of the late Professor Drake, "On the Principal Diseases of the Interior Valley of North America." For convenience, the State may be divided into two sections—the northern and the southern; the former portion drained by streams which empty into Lake Erie, and the latter by tributaries of the Ohio. The dividing ridge or hydrographical axis between these sections, passes through the counties of Ashtabula, Trumbull, Portage, Summit, Medina, Ashland, the northern part of Richland and Crawford, Marion, Hardin, Auglaize, and between Mercer and Darke. The precise point, of course, varies in different places, so that the streams emptying to the northward often interlock with those emptying into the Ohio. At the eastern portion of the State, the distance of this ridge from Lake Erie is only about thirty or forty miles, and it has an elevation of about 1,100 feet; while as we proceed westward it has a southern inclination, which renders the western portion of the northern section from eighty to one hundred miles wide, where it joins the southern portion of the State of Michigan. At the western portion of this axis, it has an elevation on the border of Indiana, of only about eight hundred feet. The southern, or river section is several times larger than the northern, the streams being proportionally large and important.

In glancing at the topography of this State, we will commence at the eastern portions, and first consider the southern section. At the dividing line between the waters which flow north and those flowing south, there is an elevation of about 1,100 feet. The face of the country is not very rough or uneven, being the eastern extremity of a flat water-shed, extending westward until it reaches streams flowing into the Mississippi, above the mouth of the Ohio. It is drained by the Mahoning and She-

nango rivers, which empty into the Beaver. These rivers flow, for the most part, through wide valleys, and abound in alluvial and diluvial terraces. They originate, in many places, in extensive swamps or small lakes, and the water has a dark color, similar to that of weak coffee. Large tracts of land are annually overflowed by these streams, and autumnal fevers are often the consequence.

Interlocking with the Mahoning, at its source, and also south of the summit level, we have the Muskingum, which empties into the Ohio 150 miles below Beaver river, in Pennsylvania, the outlet of the Mahoning. In this intermediate distance, the course of the Ohio is south-southwest. The bottom-lands are not wide, and but rarely overflowed. The hills are quite elevated, and, for the most part, press the river closely. That portion of the country lying between the Beaver and Muskingum, is drained by numerous small streams which empty into the Ohio between the mouths of these rivers. This upland is rather narrow in comparison with its length; and the counties of Columbiana, Jefferson, Harrison, Belmont, Monroe, and a part of Washington are included in it, although a small portion of the western part of all these counties, except Jefferson, is drained by small tributaries to the Muskingum.

The streams draining it are somewhat rapid, and cause deep depressions, except near their sources; and thus the surface of the country is rolling, or hilly, and in many cases with steep banks, increasing as we approach the Ohio river. The valleys of these streams are generally narrow, and but little swampy land is found. The average summit elevation is about 1,100 feet. Bituminous coal is found in large quantities, and the soil is productive. Little or no intermittent fever prevails, excepting in the neighborhood of artificial mill-ponds, which have been formed along the course of the streams. Remittents are sometimes seen, but they are rare. There is probably no region of the same extent in the State, that is so healthy. That portion of the Muskingum basin lying below Zanesville, or the southern portion, is comparatively narrow, being encroached upon by the Ohio on the east and the Hocking on the west. The bottom-lands immediately adjoining the river are seldom over half a mile wide, in most places much narrower, and uniformly composed of a rich alluvion. They are overflowed in many places by the spring freshets, and occasionally, pools of water and marshy ground

remain during the summer and autumn; causing, in their vicinity, remittent and intermittent fevers, while the inhabitants on the adjoining hills are exempt from intermittents. This region lies within the coal formation. At the upper portion, this basin spreads out to the east and west, and becomes the largest in the State. It is watered by numerous and beautiful streams, which have wide and very fertile alluvial and diluvial bottoms adjoining them. The principal of these are the Licking, the Walhonding, and the Tuscarowas. The two latter interlock at their source with streams which flow into Lake Erie; and in some instances both originate in one of the summit lakes or swamps which abound on this elevated table-land. Thus, in the cases mentioned, the waters flow in different directions.

This portion of territory lies north of the coal formation, on Devonian slate and sandstone. It is comparatively level, although some portions are quite the reverse. Intermittent and remittent fevers are more or less prevalent within its limits. The next principal river emptying into the Ohio is the Scioto, 175 miles below the Muskingum. The sources of many of the tributaries of these rivers are in close proximity, near the middle and southeastern part of the State. The surface of the country drained by the smaller tributaries of the Scioto, is naturally level and wet, but when cleared it is sufficiently dry for agricultural and grazing purposes. Intermittent and remittent fevers are prevalent in the newest portions; while in those which were earlier settled, they are more confined to the vicinity of the sluggish streams.

The region between the lower section of these rivers borders, for a long distance, on the south upon the Ohio, but does not extend very far north of it. It is the most uneven and sterile portion of Ohio, and forms a part of the brim of the great Apalachian coal basin. Beyond the termination of this formation, we come to the Devonian conglomerate sandstone and slate which dip to the southeast, and lie under the coal-measures. Iron, salt, and coal abound in this region.

The Hocking is the principal river rising in the northern part of this district, its branches interlocking with those of the Scioto and Muskingum, draining a portion of comparatively level country near its source. It is tortuous, and has wide, alluvial bottoms, which are often overflowed by spring freshets.

The Raccoon river enters the Ohio at a lower point. It is

smaller than the Hocking, and like it has broad, low bottoms, of alluvial soil, subject to inundation. Symmes creek enters the Ohio still lower down, and is generally bordered by low bottoms. All these valleys are more or less subject to intermittents or remittents, while the adjacent hills are nearly exempt from them.

In the southwest part of the State are the valleys of the Great and Little Miami rivers, which, united, are commonly known as the "Miami Valley."

Eastward and northward the small tributaries of both these streams commingle with the Scioto; on the north they are closely associated with the branches of the Maumee, which empties into Lake Erie; and on the west with those of the Wabash and White rivers flowing west into Indiana. The southern portions of the Miami basin are composed of the old or lower Silurian limestone, and the blue shale, with a copious interlamination of marlaceous blue shale. The northern parts of the basin rest on the newer or upper Silurian limestone, but are in most places covered by drift, or diluvium, resembling the formation of the upper portion of the Muskingum and Scioto basins.

As we approach the Ohio river, the surface is uneven, and quite hilly; arising from the fact that deep ravines have been cut by the draining of water into the valleys. None of the hills rise higher than a general level. This irregularity of the surface furnishes numerous beautiful sites for country residences; and, being clear from marshy ground or ponds, they are being rapidly improved for this purpose. The upper portions of this basin abound in wet or marsh prairies, woodland, swamps, and ponds, or small lakes of pure water. The streams, in their progress to the Ohio, are rapid, but have wide, fertile valleys, with several terraces, rising one above the other. The low bottoms are frequently overflowed by spring freshets, and before they were cultivated presented great varieties of wet surface, which have been removed, to a great extent, by draining and clearing. The late Professor Drake, from whose great work most of this description is condensed, remarks, "Personal observation in the Miami basin for forty-eight years, that is, since the twelfth year of its settlement, enables me to say, that it has at all times been subject to autumnal fevers; which along the streams have been both intermittent and remittent, while on the intervening hills and table lands, the latter type has generally prevailed." They have generally been simple or inflammatory, although malignant or con-

gestive cases have sometimes occurred. Settlement and cultivation have diminished, but not eliminated them.

In the northwestern portion of the State, the Maumee or Miami-of-the-Lake drains several counties, besides a portion of the southern part of Michigan and the northeastern part of Indiana.

The surface of this basin is quite level; but as we recede from the Lake it rises gradually, until there is an average altitude of about 850 feet above the level of the sea.

The Silurian limestone underlies this region, and is buried by the post-tertiary clay deposit; but its out-cropping edges are seen in the bed of the river, which descends over it by a series of rapids for eighteen or twenty miles, terminating at the head of the slack water extending from the Lake. The banks of the river are generally sufficiently elevated to prevent its bottoms from being inundated to any considerable extent. The country adjacent is heavily timbered; while the wide alluvial lands on the tributaries of the river, at the upper portions of the basin, abound in both wet and dry prairies, and many of these streams overflow their banks. On the summit level between this valley and that of the Great Miami, there is a large artificial pond, designed to supply the canal which extends upwards from the mouth of this river, and downward along the Great Miami, terminating at Cincinnati.

The level plains at and near the origin of the streams emptying into the Maumee, abound in small ponds and extensive marshes; and the land is exceedingly rich and productive, when properly cultivated. Intermittent and remittent fevers, sometimes of a malignant character, are extremely prevalent. East of this river, and between it and the Sandusky, lies a portion of country which is called the Black Swamp, covered by a forest which is said to be more dense and lofty than any other in the interior valley of the continent. It is underlaid by the upper, or gray, Silurian limestone, upon which is a deposit of post-tertiary clay, gravel, and pebbles; and above this, a thick layer of black vegetable mold. It is nearly level, but has a slight inclination towards the lake. Standing water is found in many places, its depth varying from two or three feet to only a few inches.

The close proximity of the roots of the large trees retards the escape of water, while the dense foliage shuts out the sun's rays and greatly limits the evaporation. Two small rivers, the Troussaint and Portage, take their origin partly in, and traverse the

Swamp. These streams are sluggish, broad, and frequently overflowed. Between this forest swamp and the summit level on the south, prairies abound; while to the north there are extensive grassy flats, lying in proximity to the Lake, between the Maumee and Sandusky bays. Where settlements have been made in the Swamp, autumnal fevers prevail; while detached families, settled at a distance from each other, without clearing large portions of the dense forest, enjoy better health.

East of this is the Sandusky basin, drained by the river and bay of that name. The river rises on the water-shed between Lake Erie and the Ohio river, near the rivulets which unite to form the Scioto, and empties into the Sandusky bay. The length of this bay is about twenty miles, its breadth four or five, and it is in the same plain as Lake Erie. The lower basin of the Sandusky contains a considerable amount of wet and swampy land, upon which intermittent and remittent fevers abound, but are gradually becoming less frequent as the country is cultivated. The upper basin is drier and more free from those diseases, except in the eastern part, where autumnal fevers prevail. Its elevation is about 900 feet above the level of the sea.

Ten or twelve miles east of the outlet of Sandusky bay, the Huron river empties into the Lake. It has its origin about thirty miles south. On entering this basin from the Sandusky, we leave the Silurian limestone for the Devonian or black slate and sandstone of the eastern coal formation, which lies above this calcareous stratum. The whole of the basin drained by this river is subject to intermittents and remittents of a severe type; and this has been the case from its early settlement. As the country becomes more perfectly cultivated, they gradually diminish. East of this little basin we have two more of the same class: the Vermillion and Black river basins. These streams have their origin only about forty miles from the Lake, where they interlock with the Muskingum, which flows southward to the Ohio. The dividing water-shed is here about 978 feet above the level of the sea. These basins are composed of the Devonian slate and sandstone, supporting conglomerate, the whole of which dip to the southeast, beneath the Appalachian coal deposits. Sand ridges are here discoverable. They run parallel with the Lake shore at different levels, indicating that the Lake has changed its surface at different periods. Autumnal, intermittent, and remittent fevers are here of very frequent occurrence. They are more frequent near the

mouths of the rivers, where estuaries with very little current, as in all of the rivers emptying into the Lake, are formed by the damming up of the water.

The next basin of importance, lying to the east of those just mentioned, is that of the Cuyahoga. The river of this name is over sixty miles in length, but its extreme origin is within ten miles of the Lake, east of Cleveland. From its origin it flows nearly southwest for about thirty miles. It then turns in a more westerly direction for a short distance, and then again almost directly north towards Lake Erie. In its course it is supplied by branches which commingle with the Mahoning on the southeast, and with the Muskingum on the south.

In its meandering course it descends by falls and rapids 240 feet. The head waters are on a table land, the general elevation of which is about 1,100 feet above the level of the sea, or more than 500 above that of the Lake. Hence, its entire descent, from the ponds and rivulets at its origin, is about 500 feet.

Where the Cuyahoga joins the Lake, the black slate is the lowest formation; but in receding from the shore, sandstone appears at a higher level, and as we ascend towards the margin of this basin, on the table land, we find the conglomerate upon which workable coal-beds rest. These form the northern border of the great Appalachian coal basin. The conglomerate, which underlies the coal, is nowhere found in this region until you approach the summit level, except to a very small extent in one locality, twenty-eight miles east of Cleveland, and two or three miles from the Lake shore. Here we have an elevation about 600 feet above the level of the Lake, one mile in circumference, and level on its summit, which is composed at its upper portion of conglomerate rock, with layers of different formations underneath, in their proper place. It is the only portion of conglomerate found in the Lake valley, except at the summit ridge on its southern portion. The other portions going to fill up this structure have been removed nearly down to a level with the ravines, so that what would otherwise have been a sterile hill-country, with deep gorges and ravines, is converted into a fruitful plateau. This ancient geological change has therefore essentially altered the medical topography of this region. In many parts there are wide, alluvial grounds, and near the origin of the small streams the surface is often wet with numerous small lakes, from which the tributaries often arise. Hence, we find every part of the upper portion

of the Cuyahoga valley more or less infested with autumnal fevers, although it is elevated eleven hundred feet above the sea. Wherever artificial dams have been built on the streams, the cases of autumnal fever are generally increased.

The descent of the river from the upper to the lower level is quite rapid, and takes place through a gorge in the black slate. Before reaching the Lake its valley widens, the stream becomes winding, and the current slow. As the Lake is approached, the sluggishness increases, and the Lake-winds drive the waters into the estuary, which is five or six miles long. The effect of the opposing currents formerly, was to accumulate sand near the mouth of the stream and obstruct it, even to the extent of producing more than one outlet. On either side of the river there are wide, marshy bottoms, which were formerly inundated, when obstructions existed at the mouth of the river. These obstructions also created stagnant pools, which became offensive in summer and autumn, when the river was low. The erection of two piers, extending into the Lake, now obviates this difficulty.

Within the portion of a circle circumscribed by the Cuyahoga, the Chagrin river rises, and makes its entrance into the Lake eighteen miles east of the mouth of that stream. It is rapid, from its shortness of descent to the level of the Lake. Its basin is quite healthy, if we except that portion bordering on its estuary near the Lake. Grand river joins the Lake twelve miles east of the Chagrin. Its tributaries interlock with the Cuyahoga and Mahoning at an elevation of eleven hundred feet above the level of the sea. The neighborhood of this river, near its mouth, is swampy; and the usual autumnal fevers found in similar sections prevail.

The surrounding plain is fifty or sixty feet above the Lake, and is mostly composed of post-tertiary materials, resting on the black slate. The water obtained from wells in this region is largely impregnated with calcareous matter. That of many of the streams emptying into the Lake is very dark, from their originating in stagnant pools or lakes highly impregnated with vegetable matter.

East of this the Lake valley is very narrow, and the streams emptying it are therefore very short. The summit dividing the Ohio tributaries from those of the Lake, approaches, at the line dividing Ohio from Pennsylvania, to within fifteen or twenty

miles of the shore; while at the town of Erie, in Pennsylvania, the water-shed is only ten miles from it.

CINCINNATI.—This city is situated on the northern bank of the Ohio river upon two plains or bottoms, one of which is narrow, near to, but widening as it stretches down, the river, and is composed of argillaceous alluvion; the other diluvial and much broader, with a covering of loam and soil. In the early periods of the existence of the town, a considerable portion of the lower plain was annually overflowed by spring floods; and three times since its settlement the whole has been submerged, except where the surface was raised by materials deposited from the higher grounds. The work of transformation, draining, filling up, and building over this plain, is constantly going on, and a large portion of it is now occupied by buildings used for warehouses, manufactories, and dwellings. The Whitewater canal enters the city on this level, and, from not having any regular outlet, the current is very slow and the water stagnant. This, together with intervals of the original swampy surface, renders intermittent fevers somewhat common, although not very frequent, in that portion of the city. The river shore does not present many nuisances in the city. It is sloped down to the water's edge, and most of it graveled.

The ascent from the lower plain to the upper, is between fifty and sixty feet; and, by being cut down, it forms an easy grade from one to the other. It is now covered with streets and buildings.

The upper terrace extends backwards about a mile, gradually declining to the range of blue Silurian limestone hills with which this site is nearly surrounded. On the eastern portion it is terminated by a narrow valley, traversed by Deer creek; but this stream is mostly arched over and flows in a culvert, which drains the eastern part of the city. The valley is filled up so as to be extensively built upon.

The Miami canal, which connects Lake Erie with the Ohio, comes in upon the back part of the upper terrace, and traverses it from northwest to southeast, descending into the river by lockage through the valley.

On the western border of the city lies the broad alluvial valley of Mill creek. This valley once formed the bed of a large river, but now only the small stream alluded to runs through it.

The terraces, in approaching Mill creek, sink considerably lower than the level of the upper part of the city; and, hence, much more ground is subjected to overflow during high water. It is, however, being rapidly elevated for building purposes, so that it will undoubtedly all be soon raised to a level that will be reached only by an extraordinary flood. Autumnal fevers are not unusual in this valley.

The system of drainage at present adopted, is that of gutters on the surface of the pavement; underground sewerage is not constructed to any considerable extent.

The supply of water is obtained from a reservoir on Mount Adams, into which it is forced by powerful steam engines from the Ohio river. The street pipes conveying the water are of cast iron, and the side pipes are of lead.

The population of Cincinnati proper is over 160,000; while Covington and Newport, two cities on the opposite side of the river, in Kentucky, contain about 20,000 more, making over 182,000 persons within a circle having a radius of a mile and a half. The elevated lands around the city are much of the same character and height. The country is rolling, with innumerable knobs or tuberosities, covered with a good soil. Springs are not numerous, and all the water from them is highly impregnated with lime. Coal is used almost entirely for fuel, except in cooking, for which wood is generally employed.

DISEASES OF 1852.

Cholera.—This disease prevailed to some extent during the spring, summer, and autumnal months. The first cases were presented during the latter part of April. A few occurred in May, the greater number towards the close of the month. In the course of June there was an increase, and 80 deaths were reported by the board of health. In July, cases became quite numerous, particularly in the northern part of the city, near the foot of the hill. One hundred and thirty-four deaths, from this disease, were reported during the month.

In August, the number of deaths by cholera was 129, nearly the same as in July.

In September, one hundred deaths were reported.

The reports for October are not complete. Six deaths are

reported for November. The commencement, progress, acme, and decline of the disease correspond, in a remarkable manner, with the same in previous seasons; but the amount was much smaller. Nothing new was developed in reference to the treatment. Some physicians relied very much upon the use of strychnia, while others seemed to place very little confidence in it. The true value of the remedy can hardly be considered as settled here.

Dysentery.—During the month of May, affections of the bowels increased somewhat, with an occasional case of dysentery of a mild type.

This disease prevailed during the months of June, July, and August; but the cases were neither numerous nor severe. No peculiar treatment was adopted.

Influenza.—This disease prevailed to some extent during the latter part of the year, but was not marked by any striking peculiarities.

Jaundice.—In connection with the last-named disease, many cases of jaundice occurred. It appeared as if the mucous membrane of the duodenum, rather than that of the bronchial tubes and lungs, became the seat of irritation. The prominent symptoms were those which are characteristic of inflammation of this structure, and the remedies directed with the view of combating it, soon relieved the patients. They consisted in revulsives and tonic laxatives, with small portions of blue mass in the early stage of the disease, and light diet. So far as the observations of the Chairman of the Committee are concerned, more cases of this disease were seen in November and December, than in these months for many years previously. It seemed to be connected, or at least to prevail at the same time, with a mild epidemic of influenza. The cause of either of them was not apparent.

Intermittent fever.—Occasional cases of this disease were seen during the autumnal months. For several years past our autumnal fevers have prevailed in an inverse ratio to the cholera and the choleraic diseases. As this epidemic influence is subsiding, they are again becoming more frequent.

Scarlatina.—Sporadic cases have occurred, but without any marked peculiarity.

Suppurative diseases continued to be quite common during this year, but in their disposition there was no material change.

In the absence of statistics, we would say that the season has

been a healthy one. No marked epidemic influence has prevailed. The influence of the cholera epidemic was slightly felt, but has very nearly passed away. Caution, in reference to the use of drastic cathartics, had to be observed, on account of some slight remaining tendency to bowel affections.

1853.

This year has been characterized by an absence of any well-marked epidemic. The cholera influence has continued to subside, until its controlling effect has almost disappeared. During the month of June a few cases occurred, but merely in a sporadic form. There were, probably, less than fifty cases during the summer, and these were scattered in different parts of the city. During this year the Health Officer, C. B. Hughes, M. D., made monthly reports of the deaths. They were founded upon information procured from the undertakers of the city; to whom blanks were furnished, at considerable labor, by Dr. Hughes, who deserves much credit for his perseverance in obtaining the information upon which they were based; yet they cannot be considered as correct in every particular, on account of the difficulty experienced by the undertakers in getting reliable reports from the friends of the deceased. Under the head of consumption, for instance, many diseases are reported, which were of a chronic character, but undoubtedly not tuberculous. Instances of this kind have come to the knowledge of the Committee. But in reference to the aggregate number of deaths for each month, the reports may be relied upon as being very nearly, if not exactly correct. The number of deaths, from some of the diseases reported, we think, may also come very near the truth; and we will merely call attention to those which we consider reliable. The whole number of deaths, in a population of 165,000, was 3,455, distributed as follows:—

January,	248	July,	317
February,	270	August,	307
March,	303	September,	281
April,	289	October,	270
May,	292	November,	262
June,	345	December,	271
Total,			3,455

By this it will be seen that the largest number occurred in June, and the smallest in January; the difference being ninety-seven. The following is the report of some of the most prominent causes of death, which may be relied upon as nearly correct.

CAUSES OF DEATH.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Cholera Morbus (most of them probably Cholera),			1			8	1	2		3	2		17
Cholera Infantum,						45	43	49	35	6	1		179
Dysentery,	1	1	5	1	6	8	13	17	18	11	3	2	86
Scarlet Fever,	26	16	17	25	27	15	10	15	8	21	23	27	230
Hæmoptysis,		2							2				4
Hydrophobia,						1							1
Jaundice,			1	1			2	1	1			2	8
Measles,	1	3	12	16	6	10	4	1	2				55
Small-Pox,	1	3					1					1	6
Sun-Stroke,						1	1	1					3
Tetanus,	1							1	1		1	1	5

Of the 3,455 deaths, the causes of 1,000, or nearly one-third of the whole, were not reported. This is an evidence that greater accuracy is to be desired in these reports: but, in the absence of any well-digested law requiring reports to be made to the Health Officer, and certificates of physicians as to the cause of death, this information is the best that can possibly be procured, and may be considered as an approximation to the truth.

AGE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Less than 1 year old,	42	35	47	44	31	73	84	62	58	41	20	34	571
Between 1 and 2 years,	19	26	22	20	22	46	48	51	44	27	13	19	357
" 2 " 3 "	18	21	17	19	19	29	16	17	16	29	17	19	237
" 3 " 4 "	14	15	6	18	14	11	20	15	12	12	12	10	159
" 4 " 5 "	10	5	10	11	10	6	6	10	8	9	6	8	99
" 5 " 10 "	14	15	16	16	27	9	9	10	7	19	16	10	168
" 10 " 15 "	4	6	5	2	12	6	6	3	2	7	3	4	60
" 15 " 20 "	5	8	4	2	6	5	4	7	4	6	5	9	65
" 20 " 30 "	29	22	38	27	30	35	23	33	37	34	23	26	357
" 30 " 40 "	21	32	20	20	29	28	34	39	29	27	24	24	327
" 40 " 50 "	16	13	14	13	15	18	17	15	13	22	19	15	190
" 50 " 60 "	8	7	13	9	12	5	9	9	8	5	7	10	102
" 60 " 70 "	13	8	8	6	3	3	6	3	8	7	4	10	79
" 70 " 80 "	3	5	6	6	3	3	7	2	3		3	5	46
" 80 " 90 "	2	2	2		4			2	1	1	1	1	16
" 90 "100 "			1			1			1				3
Dead born, ...	5	7	11	9	6	7	5	11	6	9	11	14	101
Age not reported, . . .	25	43	63	67	49	60	23	18	24	15	78	53	518
Total, ...	248	270	303	289	292	345	317	307	281	270	262	271	3455

The principal disease among those reported, which is not uniformly found during every season, is that terror of the nursery, scarlet fever. Its frequency has been pretty uniform throughout the year. It has not been remarkable either for severity or mildness. In reference to treatment, nothing has occurred requiring any special notice.

Abstract of Meteorological Register kept at Cincinnati, Woodward High School, Lat. 39° 6′ *N., Long.* 84° 22′ *W.,* 150 *feet above low-water mark in the Ohio.* By JOSEPH RAY, M. D., Professor of Mathematics.

1852.	FAHRENHEIT'S THERMOMETER (standard).												BAROMETER (Smithsonian standard.				RAIN AND SNOW.			WEATHER.		
	Minimum.	Maximum.	Range.	Mean temperat'e.	Mean temperat'e, sunrise.	Mean temperat'e, 2, P. M.	Coldest day.	Mean temperat'e, coldest day.	Warmest day.	Mean temperat'e, warmest day.	Least daily variation.	Greatest daily variation.	Minimum.	Maximum.	Range.	Mean height.	Fluid inches.	Dry snow, inches.	No. of days of rain and snow.	Clear and fair days.	Variable days.	Cloudy days.
January,	−12°	68°	75°	27.28°	22.10°	34.50°	19th	−7.0°	31st.	48.2°	2°	32°	28.8351in.	30.0861in.	1.251in.	29.4448	2.80	22.6	13	11	7	13
February,	15	60	45	36.87	32.00	44.20	11	27.2	24	48.8	2	27	28.631	29.885	1.254	29.3847	4.70	.7	11	12	7	10
March,	14	85	71	46.19	40.00	55.70	19	22.0	18	69.5	1	44	28.582	30.017	1.485	29.3416	5.12	.1	10	7	14	10
April,	30	89	59	50.71	42.17	62.30	2	40.7	30	68.2	3	43	28.646	29.618	.972	29.2019	6.34	.0	15	8	17	5
May,	39	87	48	64.67	54.40	77.50	19	52.8	29	75.0	2	35	29.085	29.797	.712	29.4161	2.37	.0	11	12	16	3
June,	46	91	45	68.86	59.60	80.60	9	57.0	15	76.8	10	34	29.050	29.755	.705	29.4079	5.18		9	15	13	2
*July,	59	98	39	80.11													2.05			21	10	0
August,	58	89	31	75.09													4.35			11	19	1
September,	42	91	49	65.08	56.70	76.80	12	55.7	9	73.2	4	31	29.080	29.688	.608	29.4887	4.50		9	15	11	4
October,	35	87	52	60.21	52.71	71.35	15	47.0	8	75.3	9	32	29.106	29.794	.688	29.4573	2.50		6	15	13	3
November,	27	69	42	41.37	37.27	48.00	15	30.2	4	61.5	4	21	28.888	29.891	1.058	29.4025	5.30	.0	14	6	10	14
December,	21	58	37	39.94	34.93	45.80	13	29.8	23	55.0	1	25	28.788	29.844	1.056	29.4188	8.85	.0	15	12	8	11
Year,	−12	98	110	54.70			Jan.19	−7.0			1	44	28.532	30.086	1.554	29.3964	54.06	22.4		145	145	76

* I was absent from the city July and August. The items for these months were furnished by Mr. John Lea.

NOTES.—Mean temperature of January about 6° below the mean of 16 years.

"	"	February	" 8	above	"	"
"	"	March	" 8	"	"	"
"	"	April	" 4	below	"	"
"	"	May	" 1	above	"	"
"	"	June	" 2	below	"	"
"	"	July	" 4	above	"	"
"	"	August	" 1½	"	"	"
"	"	September	" 0	"	"	"

Mean temperature of October, about 8° above the mean of 16 years.

"	"	November	" 1	below	"	"
"	"	December	" 7	above	"	"

Mean temperature of the year about one degree above the mean of the last 16 years, but the same as the mean of the last 4 years.

The amount of rain for the year is about 6 inches more than the annual mean. The amounts for April and December are each about one half more than the average for these months. In other respects the rain is not anomalous.

Abstract of Meteorological Observations made at Cincinnati, Woodward High-School, lat. 39° 6′ N., long. 84° 22′ W.—150 feet above low-water mark in the Ohio. Instruments, Smithsonian standard. By Joseph Ray, M. D., &c.

1853.	Fahrenheit Therm'r.				Barometer.				Rain and Snow.			Weather.			Winds.								Least daily variation of thermom.	Greatest daily variation of thermom
	Min.	Max.	Ran.	Mean temp.	Min.	Max.	Range.	Mean height.	Fluid inches.	Dry snow.	No. of days of r. and s.	Clear and fair.	V'ble.	Cl'y.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.		
January,	10°	60°	50°	34 55°	28 553in	30.065in	1.512in	29 5059in	1.23in	2.0	5	18	6	12	1½	0	3	0	1	6½	8½	10½	3°	27°
February,	2	61	59	35.57	28.954	29.911	.957	29.4160	5 60	7.4	8	10	12	6	2½	3½	3	0	3	4½	7	4½	6	31
March,	18	80	62	42.22	29.011	29.846	.835	29.4071	1.37		6	14	9	8	3	4	2½	0	5½	2	5	9	6	44
April,	32	86	54	54.44	28.981	29.707	.778	29.3732	3 11		13	15	10	5	2½	8	2½	½	1	4	5½	6	2	36
May,	40	88	48	63 88	29 147	29.669	.552	29.4124	1.34		11	14	16	1	5	3½	3	0	1	7½	8	3	6	34
June,	53	98	45	75 59	29.271	29 652	.381	29.4501	1.55		4	22	8	0	0	2½	2½	1	3	3	14½	3½	18	35
July,	59	94	35	75.65					4 81		10	13	17	1										
August,	58	98	40	76.20					2.16		10	14	17	0										
September,	43	91	48	66.88	29.035	29.687	.653	29.4526	4.75		8	18	8	4	3	2½	1	0	1	4½	12	6	4	29
October,	32	80	48	50.14	28.912	29 792	.880	29.4977	3 56		7	17	11	3	2	4½	7½	1	0	2	7½	6½	5	34
November,	25	72	47	47.59	29.286	29.966	.680	29 5961	2.60		8	12	9	9	2	9	0	½	6	5	5½	2	5	31
December,	9	62	53	32.72	28.623	29.813	1.190	29.4241	1 84	3.5	7	12	13	6	3	4	9	0	1	1½	7½	5	5	28
Year,	2	98	96	54 58	28.553	30.065	1.512	29.4535	38 92	12.9	97	174	136	55									3	44

The height of the barometer is corrected for capillarity, and reduced to the temperature of 32° Fahrenheit. I was absent from the city in July and August. For the items of observations for these months, I am indebted to Mr. John Lea.

The amount of rain, in 1853, was unusually small. The average annual amount at Cincinnati, is about 48 inches.

The following communication was received by the Committee, and is inserted as furnished.

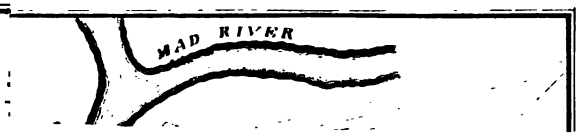
Hydrography, Topography, Geology, and Climate, of Montgomery county, Ohio, and the Epidemics which have prevailed therein from its first settlement to 1854. By H. G. CARY, M. D. of Dayton, Ohio.

HYDROGRAPHY.—In passing from its origin, near the center of this State, where its head branches interlace with those of the Scioto, to its confluence with the Ohio, the Miami river flows along the east border of Montgomery county, for three miles, then enters it and traverses its entire length, emerging at the middle of its southern limits. This is the principal water-course of the county, and the only one which passes through it—the others being tributary. The banks are usually alluvial, and retain the water at ordinary stages of the river.

The trough of the Miami, in Montgomery county, is from two to three miles in width, limited on one or both sides by a range of rugged hills of variable height. In the northern part, they are composed chiefly of quarry and silicious limestone, rising, in some places, fifty or sixty feet above the bed of the river. In the central portion, the point at which most of the affluents join the Miami, the hills recede, embracing an extensive basin. Here they are composed of drift, are uniform and gradual in their ascent, and terminate in rounded summits. As the southern section is approached, the valley is gradually diminished in width, and is environed on either hand by steep and broken surfaces, underlaid with and consisting chiefly of blue limestone.

On the inclined planes reaching in both directions from the Miami, fountains of water burst out, forming streams varying in size from the gurgling rivulet, to the perpetual current affording from four hundred to five hundred gallons of water per minute. These are often precipitated over out-cropping crags, from five to fifty feet high, forming beautiful cascades.

Stillwater, the second river in magnitude in Montgomery county, enters the middle of its northern limits. Meandering to the southeast, through a country diversified by hill and dale, it joins the Miami one mile above the city of Dayton. This stream



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is broad and of considerable depth, flowing with a sluggish current. The bottom lands are about one mile in width, encroached upon in many places by diluvial cliffs of considerable altitude.

Removed from Stillwater, on the brows of hills capped with stratified rock, are some of the most permanent fountains found upon any of the tributaries of the Miami river. The waters, in passing from these springs, seldom produce much wet ground.

The district of country intermediate to Stillwater and the Miami rises several hundred feet. Resting here, are beds of drift of unknown thickness. These deposits being impervious to water and usually level, large sheets of surface water accumulate, and remain until removed by artificial drains or evaporation.

The table-land of the northwest portion of the county is subject, for like reasons, to accumulations of water. It is drained, however, to some extent by the incipient branches of Wolf creek, which, in passing to the Miami at Dayton, receives numerous spring branches and becomes a stream of considerable magnitude. The rivulets tributary to this watercourse are numerous, but they do not afford the same proportion of water to Wolf creek as those pouring into Stillwater. As great relative volumes are discharged from the fountains, but in many places, after running a short distance over impervious strata, the water passes upon beds of silt, and sinks. What has been said of these streams, is also applicable to Wolf creek itself. The materials of which its bed is composed, until within a short distance of Dayton, are impervious to water. Here detritus takes their place, and absorbs the stream; while sufficient water is found, three miles from its mouth, to propel considerable machinery.

The head-waters of Bear creek interlace with the tributaries of Big Twin, which jointly drain the middle of the western and southwestern portions of the county. They are durable streams, and, like Wolf creek, originate in and are supplied by springs. From its source, Bear creek runs south 45° east, and empties into the Miami. Big Twin originates in Preble county, passes through the southwest corner of Montgomery, is more tortuous, and bears several degrees further west than Bear creek, joining the Miami five miles within Butter county.

On the east side of the Miami, Mad river is the largest and only stream of any considerable magnitude. It enters the eastern border of the county, above its middle, and flows with a strong

current southwest, to Dayton. This stream is not wide, and the banks are liable to overflow.

Holes creek is formed by the aggregation of the spring branches of the southeast corner of the county. It is a permanent stream, and affords considerable water-power. Flowing to the northwest, it enters the Miami five miles south of Dayton.

Sugar and Beaver creeks are small water-courses which drain the middle of the south border of the county, and empty separately into the Little Miami, in Green county.

The Miami canal is an artificial channel of water forty feet wide and four feet deep. It enters the county on the north, in close proximity to the Miami river, and has been excavated along the west bank for three miles; then, crossing by an aqueduct to the east, it continues in the vicinity of the river to its exit from the county. In passing this distance, the canal has a lockage of one hundred and one feet. There is seldom any current or motion of its waters except that produced by passing boats.

Three miles from the mouth of Mad river, a dam has been thrown across the stream, diverting the water into a channel, which has been cut to Dayton. Through this a strong current is constantly passing—the water being used for manufacturing purposes. In addition to the above-named natural and artificial channels and collections of water, dams and races almost without number have been constructed, producing a greater amount of stagnant water than a mere description of the streams of Montgomery county would indicate.

The water used in the county for culinary and domestic purposes is highly surcharged with super-carbonate of lime, and is obtained from wells and springs. There are some fountains, however, containing sulphur and iron.

The crest of the water-shed dividing the Great and Little Miami rivers, is situated about three miles within, and runs in a zig-zag direction along, the east line of the county.

Topography.—Montgomery county is situated between the parallels of 39° 31′ and 39° 39′ north latitude, and 7° and 7° 9′ west longitude from Washington; embracing an area of 437 square miles, and containing a population of 40,000. It is endowed with many of those natural and artificial objects which render the Mississippi valley the most diversified in the world. The flourishing cities and villages in which it abounds, its majestic rivers, mean-

dering streams, and sparkling cascades, joined to gentle hills, rugged steeps, and arable lands, contribute no less to the grandeur of its landscape, than do its mounds, entombing the remains of giant forms, to the interest of American antiquity.

The surface of the country is undulating, marked in many places by high elevations overlooking adjacent valleys, which, with their tranquil water-courses as they stretch away and are lost amid distant hills and woodlands, support busy throngs, and contribute their means to the sustenance and thrift of a mighty nation; while, in other places, alluvial bottoms spread out for miles in unbroken plains, limited by gradual acclivities rising into rounded eminences, or disappear in the upland.

Most of the country is in a good state of cultivation, and yields largely to the toil of the husbandman: the remainder is generally inclosed and used for grazing.

The rivers and large creeks have usually three terraces rising one above the other, with an aggregate width of from one-half to three miles. These are situated commonly upon one side of the stream, while upon the other a range of hills approach almost to the water's brink, often changing their relative position to the water-course within a short distance. The first table from the stream is formed of marsh-ground and beds of sand, developing rank growths of vegetation common to such localities. The second is from eight to fifteen feet higher than the first, is composed of rich, black loam, and is remarkably productive of Indian corn. The third terrace is continuous with the table land of the country, and consists of vegetable mold and disintegrated substrata, intimately commingled; yielding small grain and grass in great abundance.* The hills receding from the Miami river in the southern part of the county, which are composed of blue limestone, produce the grape in a high degree of perfection.

In the latter part of the last century, the first settlers found the district now composing Montgomery county, covered with dense growths of poplar, walnut, sugar maple, ash, oak, buckeye, beech, and underbrush, almost wholly shutting out the sun's rays from the surface of the earth. The high districts of the northwest part of the county were partly submerged, during most of

* From 36,000 to 40,000 acres are annually cultivated in Indian corn, producing from 1,500,000 to 2,000,000 bushels, and about the same number of acres yield from 700,000 to 1,000,000 bushels of wheat annually.

the year, by surface water; and the springs, which in many instances were only marked by circumscribed spots of wet swamp land, as well as the streams leading from the stronger fountains, by the accumulation of vegetable substances, were often dammed up, producing stagnant pools, or diverting the water over bottom lands, which spread out, like a great sponge, to drink up the passing currents. The bayous leading to the streams and neighboring ponds often contained water all the year, yielding rank growths of aquatic plants. The rivers and creeks contained greater volumes of water than at present, and, during freshets, spread far and wide over the surrounding lowlands. They were not subject, as now, to failures on account of drouth, and remained swollen a long time after the fall of heavy rains.

With the progress of civilization, the forests have given place to vineyards, orchards, and gardens; artificial drainage has extended into the uplands, drawn off the water, and left extended meadows and arable fields; while the fountains, which spontaneously burst from almost every hill-side, have been opened out and their waters conducted in artificial channels to drive machinery, or to beautify yards and gardens in distant valleys. Thus, Montgomery county has been converted into one of the most productive districts of the Mississippi valley, and is capable of sustaining as dense a population.

The diseases with which the early inhabitants of this county were afflicted, consisted chiefly of inflammations and malarial affections, partaking largely of the latter form of morbid action. From the primitive mode of living and the exposure incident thereto, bronchitis, pneumonitis, pleuritis, gastro-enteritis, and rheumatism of a marked sthenic character, were the prevalent diseases of the winter and spring. In the treatment of this class of cases, the artillery of the materia medica were daily demanded. Armed with the lancet, antimonials, mercurials, blisters, and cathartics, the general practitioner went forth to combat a common enemy, seldom requiring a more extended range of therapeutical agents.

Miasmatic diseases were annual in their visitations, and almost invariably produced fearful ravages upon the health and lives of the first settlers, few of whom escaped an attack of some character during the summer and autumnal months. Intermittent, remittent, and dysenteric fevers, with hepatic complications, embraced the most frequent forms of periodical affections. These

were treated by the free and daily use of indigenous bitters and tonics, macerated in spirits, joined, in the early stage, to mercurials and active antiphlogistics. Copious depletion was indicated in very many instances, and borne remarkably well. Many cases demanded the frequent repetition of it.

As the forests were removed and the county drained, malarial affections became less frequent and less serious in character, and yielded more promptly to new modes of medication. The discovery of quinine, and its introduction here in 1824, produced an entire revolution in the treatment of autumnal fevers. It was first imported in quantities of a drachm,* and prescribed in grain doses to those cases in which barks, from their bulk and nauseous qualities, could not be used. Its prompt action in arresting these diseases, inspired the practitioners with courage to increase the dose and extend the range of its use; until quinine is now often prescribed in scruple doses, and has taken the place of offensive and comparatively inert bark and alcoholic bitters, in the treatment of periodical seizures.

A strong proclivity to bowel affection preceded and followed the cholera of 1832, of which there were but few cases in the county. This predisposition continued, and was so much increased by the return of the disease in 1849, as to render the use of drastic and hydrogogue cathartics inadmissible in the treatment of disease, the type of which has since been so asthenic in character as seldom to require the use of the lancet, except in traumatic inflammations.

The excesses and dissipations incident to affluence undirected by sanitary regulations, have multiplied consumption and developed strumous affections beyond computation; and syphilis, a disease scarcely known to primitive medicine, is almost daily met with in some of its protean forms, by the city practitioner. The multiplication of these affections among us, has brought cod-liver oil and preparations of iodine into constant use.

Milk sickness was formerly endemic along some of the water-courses in the eastern portion of the county, but it is now seldom met with. The cultivation of the land has entirely banished this mysterious disease.

There was a remarkable decrease of miasmatic disease in Montgomery county during the years 1849, 1850, and 1851; indeed,

* It was sold at the rate of $20 per oz.

they almost wholly disappeared in those localities where cholera prevailed to any great extent during either of the above years. Considerable diversity of opinion existed in the minds of medical men who attempted to account for this phenomenon. I am disposed to refer it to the well-known law,—that no two epidemic or endemic influences, can operate upon and impress the same constitution with their peculiar natures, simultaneously; one or the other will take the ascendency, to the subversion of the weaker rival.

In June, 1849, the atmosphere became surcharged with a poison which, in its operation upon the human economy, produced a train of symptoms and morbid changes, denominated cholera. For a short season this disease took the place of all others; after which it gradually declined, leaving its peculiar impress stamped upon all affections. The declining influence which lingered, and the established predisposition, were conjointly inadequate to the development of cholera, unless aided by an exciting cause; yet, they held the ascendant power over endemic morbific agents. During this time, diseases of the bowels were the prominent affections. The epidemic tendency and predisposition finally vanished, as was indicated by a great decrease of diarrhœa, with and without complications; and the endemics of this section have resumed, in modified forms, their former places.

Typhoid disease, until within the last few years, was only known to the physicians of this county as a single stage of certain affections. As an idiopathic fever, it first made its appearance in the winter of 1849–50, and has been increasing with considerable rapidity since that time.

After each successive epidemical visitation, which from time to time has swept over the county, disease has become greatly modified, losing most or all of those dynamic elements which demanded the interposition of active antiphlogistic medication. These constitutional revolutions appear, first, to have superadded a typhoid stage to bilious and pulmonic fevers; and, secondly, by their enervating influence upon the inhabitants, favored the multiplication of struma; and, thirdly, contributed in no small degree to the development of typhoid fever.

The changes which have taken place in the treatment of disease within the past half-century, and the remedial agents which at stated periods have been brought into popular favor for a season, and then consigned to a greater or less obscurity, are more

the results of great pathological tendencies and variations in the prevailing types of disease, than of professional acumen or caprice.

GEOLOGY.—Carbonate of lime forms the principal ingredient of all the stratified rock in Montgomery county. These rocks have their similars in several groups of New York, and in the upper and lower Silurians of England. They consist of the following varieties, commencing the enumeration from below.

1st. Blue Limestone.
2d. Yellow Limestone, or Encrinital.
3d. Quarry Limestone, or Dayton Marble.
4th. Pentaminous, or Silicious Limestone.

The first extends over about one-half of the county, forming the beds of all the rivers and creeks of any magnitude in the county, and immediately underlies beds of gravel and the soil of about one-half of the county. The second is coarsely crystalline, and unfit for building purposes. The third caps the water-shed between the Miamis, is of a light color, compact, and contains about ninety-two per cent. of carbonate of lime. This forms the most elegant and durable building material in the West. The silicious formation consists of thin, shelly strata, of a light drab color, breaks with a dry, earthy fracture, is situated in the northwest, and extends into the adjacent counties.

Resting upon these rocks, in place, and scattered profusely over the surface of the county, are diluvial beds of gravel and boulders, varying in size from grains of sand to irregular masses weighing several tons. Among these may be found representatives from most or all of the known series to the north of us.

1850, 1851.	Barometer, corrected and reduced to 32° Fahrenheit. English inches. Monthly mean.	Maximum.	Minimum.	Variation.	Fahrenheit thermometer, in the open air and shade. Monthly mean.	Maximum.	Minimum.	Variation.	Monthly mean.	Directions of the wind. Monthly mean.	Quantity of Rain. Par. cub. inches.	Melted snow. Par. cub. in.	Depth of rain and melted snow. Par. inches.	Relative humidity per cent. Monthly mean.	Force of vapor. Par. line. Monthly mean.	Number of— Thunder storms	Heat lightning.	Dew.	Frozen dew.	Dry mist	Fog and mist.	Rain.	Snow
December,	29.346	29.675	28.520	1.155	30.65	62.15	2.75	59.18	6.8	E: W—1:9.17. S: N—1:1.64	116.70	65.98	1.267	81	1.630	0	0	0	5		1	10	6
January,	29.293	29.977	28.716	1.261	31.550	58.55	—7.37	65.92	5.5	E: W—1:59.00. N: S—1:1.13	47.08	0.50	0.329	75	1.620	0	0	0	11		7	6	1
February,	29.377	29.835	28.787	1.048	38.300	63.30	8.15	55.35	7.1	E: W—1:7.17. N: S—1:1.89	375.69	38.48	2.877	80	2.220	0	0	0	6		6	10	5
March,	29.266	29.568	28.955	0.631	48.250	73.17	15.80	57.37	4.8	E: W—1:8.17. N: S—1:1.48	170.80	4.50	1.217	69	2.220	3	1	4	6		8	9	*2
April,	29.151	29.684	28.565	1.119	48.870	73.40	26.82	46.58	5.5	E: W—1:4.00. N: S—1:1.00	168.43	0.00	1.168			1	1	4	6		3	11	0
May,	29.222	29.542	28.875	0.667	63.050	89.82	20.75	69.07	5.2	E: W—1:2.75. N: S—1:5.89	182.02	0.00	1.264			9	5	13	†4		5	12	0
June,	29.165	29.470	28.724	0.746	67.550	88.70	46.19	42.53	6.0	E: W—1:3.29. N: S—1:3.50	190.10	0.00	1.520			9	0	9	0		2	10	0
July,	29.177	29.878	29.000	0.873	71.820	91.40	47.07	44.33	4.6	E: W—1:3.43. N: S—1:2.87	393.20	0.00	2.751			14	5	22	0		4	12	0
August,	29.381	29.462	28.946	0.498	69.800	86.00	43.92	42.08	3.7	E: W—1:2.39. N: S—1:2.10	187.00	0.00	1.299			5	4	26	0		12	8	0
September,	29.319	29.648	29.026	0.622	65.300	94.82	30.87	64.45	3.3	E: W—1:1.88. N: S—1:1.95	79.60	0.00	0.552			0	1	18	‡1		17	3	0
October,	29.195	29.577	28.733	0.844	50.220	78.85	17.37	60.98	4.7	E: W—1:2.69. N: S—1:2.96	168.60	4.00	1.163			0	0	9	6		19	7	§1
November,	29.218	29.684	28.680	1.004	37.620	68.90	17.37	51.53	7.7	E: W—1:1.64. N: S—1:1.00	121.80	104.80	1.570			2	0	0	2		10	8	5
Yearly mean,	29.243				51.498				5.4	E: W—1:3.15. N: S—1:1.72													
Sums,											2197.52	218.06	16.767			43	17	104	47		89	106	20
1851, 1852.																							
December,	29.319	29.137	28.733	1.004	26.150	61.25	—22.90	84.15	7.2	E: W—1:2.11. N: S—1:2.81	177.70	40.60	1.316	81	1.490	1	0	0	5	0	5	7	3
January,	29.222	29.817	28.547	1.270	23.000	57.20	—31.45	88.65	7.1	N: W—1:1.69. N: S—1:2.00	51.70	121.80	1.205	81	1.270	0	0	0	2	0	10	5	10
February,	29.168	29.719	28.627	1.092	33.570	84.95	5.22	49.73	6.7	E: W—1:2.67. N: S—1:1.85	286.50	20.20	1.078	72	1.560	0	0	0	2	0	7	6	4
March,	29.142	29.746	28.280	1.466	42.570	77.90	6.35	71.55	7.0	E: W—1:1.52. N: S—1:1.31	178.30	4.50	1.239	71	2.310	3	0	0	4	6	5	12	4
April,	28.982	29.391	28.414	0.977	46.520	83.97	21.42	62.55	6.7	E: W—1:2.50. N: S—1:1.70	318.30	0.40	2.207	78	2.620	6	0	2	6	4	9	15	11
May,	29.204	29.559	28.867	0.697	60.800	82.40	28.17	54.23	6.0	E: W—1:2.11. N: S—1:2.35	206.30	0.00	1.432	72	4.400	7	4	11	¶3	2	10	15	0
June,	29.195	29.533	28.818	0.720	65.520	88.25	37.17	51.08	5.0	E: W—1:2.56. N: S—1:2.00	157.70	0.00	1.093	79	5.580	9	6	20	0	0	10	12	0
July,	29.213	29.444	28.920	0.524	73.400	94.55	43.25	51.30	4.0	E: W—1:2.85. N: S—1:1.00	104.10	0.00	0.727	74	6.620	13	9	22	0	1	6	11	0
August,	29.177	29.470	28.911	0.559	68.900	85.32	41.67	43.65	3.2	E: W—1:1.00. N: S—1:2.00	96.90	0.00	0.671	76	5.840	5	2	16	0	0	17	12	0
September,	29.266	29.488	28.858	0.630	61.700	87.57	31.32	56.25	5.5	E: W—1:1.00. N: S—1:4.09	188.60	0.00	1.307	82	5.010	6	2	9	**1	2	16	14	0
October,	29.257	29.479	28.902	0.557	56.300	80.15	26.37	53.78	5.6	E: W—1:1.52. N: S—1:2.00	168.00	0.00	1.166	80	4.010	1	2	11	6	2	18	10	0
November,	29.213	29.684	28.689	0.995	37.620	66.20	15.25	50.85	3.0	E: W—1:1.89. N: S—1:1.00	289.60	7.30	1.852	81	2.190	0	0	0	7	0	2	14	††6
Yearly mean,	29.196				49.680				5.2	E: W—1:1.81. N: S—1:1.84				77	3.575								
Sums,											2148.70	194.80	18.498			51	25	91	36	24	110	138	28

* March 9, 1851, last snow.
† May 7, 1851, last frozen dew.
‡ September 25, 1851, first frozen dew.
§ October 26, 1851, first snow.
¶ April 1, 1852, last snow.
‖ May 31, 1852, last frozen dew.
** September 18, 1852, first frozen dew.
†† November 18, 1852, first snow.

METEOROLOGICAL YEAR.	BAROMETER CORRECTED AND REDUCED TO 32° FAHRENHEIT—ENG. INCHES.				FAHRENHEIT'S THERMOMETER, IN THE OPEN AIR AND SHADE.				Clearness of the sky.	DIRECTIONS OF THE WIND.	Quantity of rain and melted snow.		Depth of rain and melted snow.	Relative humidity—per cent.	Force of vapor. Par. lines.	NO. OF DAYS WITH							
1850-1851.	Mean.	Maximum.	Minimum.	Variation.	Mean.	Maximum.	Minimum.	Variation.	Mean.	Mean.	Par.	cubic inches.	Par. inches.	Mean.	Mean.	Number of Thunder storms.	Heat lightning.	Dew.	Frozen dew.	Dry mist.	Fog and mist.	Rain.	Snow.
Winter,	29.328	29.977	28.520	1.457	33.57	63.50	—7.37	70.87	6.5	E:W—1:12.07. N:S—1:1.13.	589.5	104.8	4.473	79	1.49				22		14	26	12
Spring,	29.218	29.684	28.565	1.119	51.80	89.82	15.80	74.02	5.2	E:W—1:4.15. N:S—1:1.46.	521.3	4.5	3.649			13	7	21	16		11	32	2
Summer,	29.195	29.470	28.724	0.746	69.80	91.40	43.92	47.48	4.8	E:W—1:3.00. N:S—1:3.35.	772.3	0.0	3.860			28	9	57			16	30	0
Autumn,	29.240	29.684	28.680	1.004	51.12	94.32	17.37	76.95	5.2	E:W—1:1.81. N:S—1:1.77.	364.5	108.8	3.285			2	1	27	9		46	18	6
1851-1852.																							
Winter,	29.240	29.817	28.547	1.270	27.50	61.25	-31.45	92.70	7.0	E:W—1:2.09. N:S—1:2.18.	465.9	182.6	3.799	78	1.489	1			9		22	18	17
Spring,	29.090	29.746	28.280	1.466	50.00	88.97	6.35	77.62	6.6	E:W—1:2.00. N:S—1:1.71.	702.9	4.9	4.878	72	3.110	16	4	18	13	12	24	42	5
Summer,	29.195	29.533	28.813	0.720	69.12	94.55	37.17	57.38	4.7	E:W—1:1.83. N:S—1:1.72.	388.7	0.0	2.491	76	6.014	27	17	58	0	1	33	35	0
Autumn,	29.243	29.684	28.689	0.995	51.80	87.57	15.35	72.22	6.4	E:W—1:1.43. N:S—1:1.96.	616.2	7.3	4.825	81	3.737	7	4	20	14	11	31	38	6

METEOROLOGICAL YEAR.	ENGL. INCH BAROMETER, CORRECTED AND REDUCED TO THE FREEZING POINT, OR 32° FAHRENHEIT.				OPEN AIR THERMOMETER. FAHRENHEIT.				Clearness of the sky.	WIND DIRECTIONS.	Relative humidity, per cent.	Force of vapor. Paris lines.	Number of Thunder-storms.	NO. OF DAYS WITH						
1852–'53.	Monthly mean.	Maximum.	Minimum.	Variation.	Monthly mean.	Maximum.	Minimum.	Variation.	Monthly mean.	Monthly mean.	Monthly mean.	Monthly mean.		Heat lightning.	Dew.	Frozen dew.	Fog and mist.	Rain.	Snow.	Dry mist.
December,	29 177	29.689	28.565	1.074	36.27	59.45	9.72	49.73	7.26	N : S—1 : 4.60. E : W—1 : 1.41.	82	2.087	2	1	0	7	6	12	3	0
January,	29 284	29.808	28.307	1.501	31.55	56.30	3.87	52.43	5.99	N : S—1 : 1.85. E : W—1 : 1.30.	80	1.561	0	0	0	11	4	6	7	0
February,	29.186	29 666	28 742	0.924	30.87	54.27	—14.12	68.39	6.95	N : S—1 : 2.06. E : W—1 : 2.90.	81	1.650	1	0	0	7	5	6	4	0
March,	29.186	29.689	28.707	0.982	38.52	69.80	9.72	60.08	6.34	N : S—1 : 1.52. E : W—1 : 2.69.	72	1.905	1	0	0	7	6	5	*4	7
April,	29.168	29.497	28 751	0.746	51.80	78.57	21 20	57.37	5.67	N : S—1 : 1.85. E : W—1 : 1.30.	68	2.854	8	2	2	6	3	12	0	6
May,	29.204	29.453	28.884	0.569	61.25	89.60	28.85	60.65	4.99	N : S—1 : 2.23. E : W—1 : 2.30.	66	4 066	7	5	11	†4	2	12	0	2
June,	29.248	29.479	29.035	0.444	76.10	97.47	41.00	56.47	3.64	N : S—1 : 4.45. E : W—1 : 3.00.	65	6.382	10	6	20	0	2	8	0	1
July,	29.240	29.417	28 973	0.444	72.72	92.97	45.05	47.92	4.89	N : S—1 : 1.19. W : E—1 : 1.87.	68	5.993	4	3	17	0	1	5	0	2
August,	29.195	29.524	29 000	0.524	71.82	92.75	46.85	45.90	4.82	N : S—1 : 2.29. E : W—1 : 2.92.	79	6 777	10	6	19	0	8	12	0	0
September,	29.248	29.488	28 840	0.648	63.50	86.45	37.62	48.83	5 18	N : S—1 : 1.61. E : W—1 : 1.23.	82	5.545	5	2	14	0	12	8	0	1
October,	29.257	29.595	28.689	0.906	46.62	72.05	26.82	45.23	4.52	N : S—1 : 2.26. E : W—1 : 2.07.	78	2.737	1	0	2	‡18	7	6	0	7
November,	29 373	29.737	28.964	0.773	44 60	67.77	22.32	45.45	6.50	N : S—1 : 2.53. E : W—1 : 1.00.	79	2.757	0	0	2	9	7	9	§1	9
Mean of the year 1852–'53.	29.2305	29.808	28.307	1 501	52.135	97.47	—14.12	111.59	5.52	N : S—1 : 2.291. E : W—1 : 1.6885.	75	3.693	‖49	25	87	69	63	101	19	35
December, 1853,	29.213	29.586	28.565	1.021	29.07	53.82	1.40	52.42	5.69	N : S—1 : 1.84. E : W—1 : 3.00.	80	1.484	0	0	0	9	8	7	5	8
1852–'53.																				
Winter,	29.216	29.808	28.307	1 501	32.90	59.45	—14.12	73 57	6.73	N : S—1 : 2.67. E : W—1 : 1.87.	81	1.766	8	1	0	25	15	24	13	0
Spring,	29.186	29.689	28.707	0.982	50.52	89.60	9.72	79.88	5.67	N : S—1 : 1.72. E : W—1 : 1.90.	69	2.942	16	7	18	17	11	29	4	15
Summer,	29.228	29.524	28.978	0.651	73.55	97.47	41.00	56 47	4.28	N : S—1 : 2.64. E : W—1 : 1.35.	71	6.284	24	15	56	0	11	25	0	8
Autumn,	29.293	29.737	28.689	1.048	51.57	86.45	22.32	64.13	5.38	N : S—1 : 2.13. E : W—1 : 1.43.	80	3.680	6	2	18	27	26	23	1	17

* March 28, the period of the last snow. † May 20, the period of the last frozen dew. ‡ October 3, the period of the first frozen dew.

§ November 9, small fall of snow. ‖ The numbers succeeding the reference on this line, are sums.

EPIDEMICS.—After hovering over, for some time, and occasionally producing fearful ravages upon, the American army then on duty along the northwest frontier, *typhoid pneumonia* appeared as an epidemic in the settlements along the Miami river, and at Dayton, in the winter of 1814; and returned at the same season, in 1815 and 1816. The attacks were ushered in by a severe chill, followed with imperfect reaction and profound congestion of the lungs, and subsequently of the brain. This stage was characterized by insensibility, a rapid failing of the pulse and vital energies, and a dusky, mottled appearance of the surface, which gave to the affection the name of "spotted fever." When the brain partook of the morbid action from the beginning, in many cases the patient died in eight or ten hours. In a majority of instances, however, this complication when present was secondary; death supervening from engorgement of the lungs, in twenty-four or forty-eight hours after the first manifestation of the disease.

Imitating the course of practice pursued by physicians of the army, alcoholic vapor-baths were relied on in the beginning, without success. Emetics, calomel, diffusible stimulants and revulsives, were depended upon by physicians in this section; while bold and frequent abstractions of blood, in the first stage, joined to derivation from the affected organ, proved more successful in the hands of neighboring practitioners, in relieving the suffocated action and equalizing the circulation; after which calomel and stimulating expectorants, were most efficient in overcoming the disease.

Cynanche trachealis followed in the wake of the preceding epidemic, and for some time was the bane of the nursery, affecting all of tender age, and proving fatal in one-third of those under four years. The symptoms were those of inflammation of the mucous membrane lining the trachea and bronchi, with fibrinous exudation. Dr. John Steele characterized it, as "one of the most vile and unmanageable affections which he had ever been called to combat." Occasionally it appeared as early as the third day after birth, and in these cases almost invariably proved fatal in a few hours.

The treatment consisted in the free use of mercurials, antimonials, revulsives, and the warm bath, carefully proportioned to the age and vigor of the patient. As the affection progressed, sedatives and expectorants often proved of great benefit.

In the autumn of 1818, *bilious remitting fever* assumed an

epidemic form, and became so violent as to present many of the symptoms of the yellow fever of southern latitudes. The attack was ushered in by rigors of variable duration, followed with high febrile reaction and determination of blood to one or more of the great trisplanchnic viscera. When the liver was the seat of the congestion, in addition to the phenomena usually presented by remitting fever, a uniform yellowness of the surface, varying from a pale to a deep orange color, supervened, often within twelve hours after the first stage of the disease had passed, and death speedily followed. When the *onus* of the disease was upon the brain, meningitis usually closed the scene in twelve or twenty-four hours.

If the violence of these local actions could be subdued, the fever often in two or three weeks began to remit, and the exacerbations became less distinct, until convalescence was finally established at the end of the fourth, sixth, or eighth week. The sequelæ of these later cases were chronic inflammation of the nasal cavities, with a copious discharge of sanies, greatly to the annoyance and discomfort of the patients; and protracted cough, often controlled by antispasmodics.

The characteristics of this epidemic were, a great demand for antiphlogistic medicines, and tolerance of them. Almost every day, from the commencement of the disease, patients required the abstraction of blood, to prevent local accumulations. General depletion was carried to an almost unprecedented extent; ten, fifteen, twenty, and even thirty bleedings being performed during the continuance of a single attack—and the patient recover. Tartrate of antimony and potassa was borne, in combination with calomel, in doses of eight and ten grains, without nausea. The daily use of the cold-bath proved the most efficient means of subduing the fever, and with tonics in the latter stage of the disease, would ultimately restore health.

In the fall of 1821, *congestive fever* prevailed extensively in Dayton. The most prominent symptoms were, excessive nausea and vomiting, obstinate constipation, abdomen tumid without tenderness, capillary circulation languid, pulse slow and compressible, skin cool. Venesection was the only means which promptly overcame the persistent nausea and vomiting. In many cases the abstraction of eight or ten ounces of blood*

* Dr. John Hains informs me that the blood, when drawn from the arm in the first bleeding, strongly resembled the expressed juice of the poke berry.

induced syncope, which was followed in a few hours by high reaction, demanding a repetition; when a much larger amount of blood could be taken, greatly to the relief of the patient. The free use of mercurial cathartics, preceded by the above course, converted these highly dangerous and complicated cases into simple forms of fever, which yielded without much trouble. If blood-letting, however, was omitted, gastro-enteritis soon followed, and often proved fatal.

An epidemic of *bilious remitting fever* visited the valleys of Stillwater, Miami, Mad river, and the intermediate country, in the autumns of 1823 and 1824. The disease was highly inflammatory the first, and often ran into an intermitting form of fever during the second year.

Along the valley of the Little Miami and its tributaries, reaching into Montgomery county, epidemic *dysentery* occurred in the autumn of 1824. But little can be ascertained concerning its nature, further than that it followed an inundation of the low lands, was very extensive, and fatal.

Scarlet fever appeared in Montgomery county, for the first time, in 1831. It prevailed extensively for some months, confining itself principally to childhood, and resulted fatally in two-fifths of those who suffered. The first case terminated in death, in twelve hours. The epidemic presented the following peculiarities, viz., prostration of strength and early coma, rash, great tumefaction and sloughing about the throat and glands of the neck, and speedy dissolution. The medication consisted in the use of ipecacuhana as an emetic, diaphoretics, and, after the first twenty-four hours, tonics and stimulants. As local applications, solutions of nitrate of silver, the sulphates of iron and copper, nitric acid, chlorine, and fomentations externally, were the usual remedies.

Spasmodic cholera first visited Dayton in 1832. The disease was prevailing in Cincinnati. A boat with twenty-four German emigrants arrived here from that city, on the 23d of June. One was dead when they landed, and eight others were laboring under the disease. Seven of them never recovered. The remaining sixteen were all attacked, but finally recovered, with the exception of one infant. Two of the three nurses—infirm, dissipated men, died; the third had cholera, but was saved. The disease did not extend.

Epidemic *influenza* was a very general affection during the

spring of 1833, but required little medication. In July of this year, cholera again returned to Dayton. The disease was not general, nor very fatal, only about forty citizens dying from it. Venesection was tested in this visitation, with no very satisfactory results. Calomel, stimulants, astringents, and revulsives were the most reliable means of treatment.

Erysipelas made its appearance in October, 1843, at Dayton, and continued in an epidemic form until the following May. The disease was confined mainly to adults—pregnant females being most obnoxious to its influence. Premature labor was often induced, followed by fatal peritonitis. Few parturients escaped. In the male, the mouth, face, and head were the favorite seats of the affection. Most commonly, it commenced with tumefaction of the tonsils, uvula, and mucous follicles of the fauces. It extended to the organs of voice, producing aphonia, and, in some cases, death by suffocation. The tissues of the tongue became enormously distended, protruding the organ from between the lips. At an early stage of the disease, it assumed a dark brown, or black color, was dry, and its surface marked with numerous fissures, penetrating deeply into its structure.

In these cases, the disease extended to the face and scalp, invading the deep-seated cellular tissue. This was followed by meningitis, and death. Erysipelas, in some instances, manifested itself upon the side or tip of the nose, and spread from these points. Injuries and slight scratches, however insignificant, were sufficient to develop the disease; and it almost invariably became phlegmonous. An adynamic tendency was uniformly present. In some rare instances, the affection was apparently contagious; in others, no connection whatever could be traced between the recent and the preceding cases.

In the early stage of the disease, when the morbid action invaded the fauces and was confined to the throat and buccinal cavity, great dependence was placed upon emetics, chologogue cathartics, alterants, and diaphoretics; with the application of a saturated solution of argenti nitras to the inflamed mucous membrane. As the affection progressed, the faltering energies of life demanded the early use of tonics and stimulants, of which camphor, quinine, and carbonate of ammonia were mostly used. Tincture of iodine, solutions of nitrate of silver, sulphate of copper and of iron, and the linamentum calcis, were favorite local

applications to the surface, with different practitioners. All, however agreed upon the use of alterants, tonics, and stimulants, and free incisions into the tongue and other inflamed parts, to favor the exit of effused fluids, purulent matter, and sloughs, which formed at an early stage of the disease.

Peritonitis, associated with or depending upon this epidemic, was treated by calomel, turpentine, oil, preparations of opium, and fomentations. Few recovered.

In the northeast, northwest, and southeast corners of the county, epidemic erysipelas prevailed the same year as the above. It was less fatal in its results, but affected more generally the inhabitants of the infected districts, than did the epidemic at Dayton. The disease in these rural districts was migratory, and generally cutaneous. In some instances, in children, the affection, after appearing either idiopathically or from the effects of mechanical injury, extended from part to part, or from limb to limb, until the entire surface was involved. Most of the idiopathic cases were first affected in the fauces; but the disease extended to the mouth, producing a thickened condition of the mucous membrane and tumefaction of the gums, strongly allied to ptyalism. The follicles and the salivary glands were stimulated to a copious secretion of viscid mucous. From the mouth, the disease extended to the face, the scalp, and often to the integuments of the trunk and extremities.

As at Dayton, pregnant females advanced in gestation were exceedingly prone to premature labor, and the period of accouchement was looked to by the patient and physician with the deepest anxiety and solicitude. But one female, within the range of my information, escaped. She took the precaution to secure the services of a neighboring physician, without the infected district, and had a speedy "getting up." All, however, who were attended during labor by the practitioners under whose care most of the erysipelas came, died,—in some instances, as early as twelve hours after delivery. Dr. Gish, of Salem—the point at which the disease prevailed in the northwest—thinks that puerperal peritonitis spread in a manner very like a contagious affection.

Dr. Taylor of Carrolton, resided six miles from the infected district, on the southeast, and visited it daily, administering to the afflicted inhabitants. At the same time, he was engaged in a large obstetrical practice at home, yet not a single case of peritonitis occurred among his patients during the prevalence of the

epidemic. One case, however, was developed, and proved fatal, in his neighborhood, and a mile further removed from the infected region. The patient was attended by a midwife, upon whose wrist there was a small scratch, which subsequently became erysipelatous.

Antiphlogistics were borne in these localities better than at Dayton. When carried to any great extent, however, the cases were invariably aggravated. In the southern part of the county, the treatment was simple and in most instances successful; and, of three hundred cases which occurred in and about Salem, all recovered. As local applications, tincture of iodine to the surface, and nitrate of silver, in solution, to the inflamed mucous membranes, proved worthy of the high confidence placed in them, for controlling the disease under consideration. Unguents to the affected parts, or surrounding the disease with vesicated surfaces, invariably enhanced the difficulty and favored the extension of the erysipelas. Our venerable friend, Dr. Strong, of Centreville, being somewhat indisposed, and experiencing slight hoarseness and pain in deglutition, applied a blister to the region of the trachea. The epidemic was just manifesting itself at that time in the village where he resided. The blister drew, but speedily took on erysipelatous action. Thence it extended to the face and scalp, putting his life in extreme jeopardy for some time.

With the best-directed efforts, puerperal peritonitis was uniformly fatal.

A remarkable visitation of epidemic erysipelas prevailed in 1844, extending from the valley of Bear creek, three miles from its mouth, east of south, across the Miami river to Alexandersville; a distance of four miles. The lateral margins of this epidemic were one and a half miles removed from each other, and exactly parallel; passing over districts of country essentially different in their character and condition.

The disease was not of so grave a nature as that of the preceding year, but partook of many of its characteristic peculiarities. Peritonitis occasionally occurred, and in all cases proved fatal.

The treatment pursued in this epidemic did not differ essentially from that of 1843.

In the northwest corner of the county, and chiefly confined to the valleys of the various branches of Wolf creek, *malarial fever* appeared as an epidemic in the autumn of 1843. The affection

assumed every possible type, from the simple tertian intermittent, interrupting the physiological laws but for a few hours, to the gravest forms of continued and congestive fevers, speedily resulting in dissolution. It was almost universal: four-fifths of the inhabitants of the above-named region were down, with some of the modifications of this affection, at one time. The rigors were more grave in their character and more numerous, to the windward of the streams, than in other localities. In almost every instance, the secretions were disordered; but after the use of quinine, in full doses, they resumed their natural condition, without any special medication for that purpose. This article proved to be the *remedium magnum*, in controlling every form of the disease. General depletion appeared to favor the return of the paroxysms, to which there was a strong proclivity; and they could be avoided only by the exhibition of a few doses of quinine, every seventh, fourteenth, and twenty-first day.

An epidemic of *erysipelas* prevailed in Germantown, and its western vicinity, from January to May, 1847. The disease was malignant in its character, proving most fatal in low, wet localities. In a majority of instances, it made its appearance in the fauces, in the form of an erythematic blush, which, in a few hours, gave place to sloughing ulcers. These extended rapidly, until the palate and the soft parts about the posterior nares were entirely destroyed. In the graver forms of this affection the constitutional symptoms were uniformly of a typhoid type.

When the disease invaded the surface of the body, either idiopathically or following physical violence, it seldom resulted in serious consequences to the patient. In some cases, however, the inflammation extended to and destroyed the deep-seated cellular tissue of the extremities. The mortality was one in twenty.

Medication did but little in arresting or controlling the progress of the disease. In plethoric and robust habits, it often assumed a highly inflammatory character, and antiphlogistics were freely used, with preparations of iodine and nitrate of silver as local applications. In those cases which became typhoid, quinine, mineral acid, and ammonia, were liberally prescribed, and stimulating gargles applied to the throat at short intervals.

During the prevalence of this epidemic, four cases of puerperal peritonitis occurred, and all terminated fatally.

As early as the first of April, 1849, the harbingers of *spasmodic cholera* made their appearance in Dayton. The first case of

this disease was brought from an infected district, Cincinnati, on the 18th of May, and proved fatal. The disease did not extend. The second arrived here in June, and recovered. The patient stopped at the Farmers' and Mechanics' Hotel. The affection spread to the members of the household, and proved fatal to a few of them. The house was now closed. Several of the persons who had been its occupants, took the disease soon after leaving. In some instances these cases formed nuclei, from which the affection appeared to be propagated; but in most, there was no connection between them and those that followed. A merchant from a neighboring town dined at the Hotel while the disease was in the house, returned home in the evening, and died the next day, in about twenty-four hours, with cholera. From this case the epidemic extended.

For six weeks, cholera prevailed in Dayton and some of the neighboring villages. Its visitation was severe, and the disease assumed all the various phases which are characteristic of this fearful affection, in its severest forms. Few entirely escaped the effects of its influence. The ratio of mortality has not been ascertained. In a great majority of instances, there was not sufficient evidence to warrant the conclusion that the disease was propagated by contagion. In others, the most indubitable facts were furnished, establishing its infectiousness. In its progress, it passed over the entire city of Dayton, producing much greater ravages in some sections than in others. Among that class of persons who paid the necessary attention to regimen, cleanliness, and ventilation, it never proved contagious, unless a predisposition was established through fear or mental depression of some kind, in which case it was fearfully fatal. On the other hand, where all hygienic and sanatory laws were disregarded, scores crowding together in ill-ventilated apartments, and subsisting upon innutritious, crude articles of diet, it became contagious in an eminent degree, carrying off whole families in a few hours.

All varieties of treatment were tried, and after the disease was fully developed, with about equal success.

In the winter of 1848, *membranous angina* prevailed as an epidemic among children, upon the high land in the southeast quarter of the county. In some instances it was periodical, but in none was there any considerable fever. Without expressing any great inconvenience from the presence of diptheritic exuda-

tions lining the posterior nares and fauces, or desisting from their usual sports, the little sufferers were often suddenly seized with hoarseness and difficulty of breathing, from an extension of the disease to the larynx, and expired in an hour from asphyxia. The rapidity with which the disease ran its course was truly appalling, and the mortality, devastating whole nurseries in a few hours, humiliating to the *ars medendi.*

Emetics and chologogue cathartics, with the free use of nitrate of silver, in solution, to the affected parts, arrested the disease promptly in its early stages, and proved the most reliable remedies when it was more advanced. The membranous concretion, after the use of this local application, could be removed without difficulty, exposing a florid unabraded surface, which, in the course of a few hours, would be again covered with the fibrinous exudation.

Epidemic *scarlatina* prevailed in Salem and Germantown, and their respective vicinities, in the spring of 1849. It was confined to childhood, and was usually simple in its nature. There were several cases of the anginous variety, in which no eruption was present. Some of these proved fatal in the latter place, in two hours after the first manifestations of the disease. The mortality was about ten per cent.

An emetic, in the early stage of the disease, subserved a very important end. This, with mercurials, stimulating gargles, and diaphoretics, was the usual routine of treatment.

Dysentery is endemic to an extensive district intermediate to the valley of the Miami and the west line of the county. In the autumns of 1849 and 1852, it became epidemic. The discharges, in some cases, almost amounted to hæmorrhage from the bowels. Calomel, sugar of lead, opium, and injections of mucilage containing laudanum, were the most reliable remedies.

In the fall of 1850, dysentery, preceded by diarrhœa and fever, appeared as an epidemic on the second terrace of the Miami river, commencing where the stream enters the county, and extending four miles to the south. Inflammation of the rectum and colon was of a high grade, protracted in its nature, and accompanied by fever of a remitting type. From the inception of the disease, biliary derangement was one of its prominent features. Tormina, tenesmus, and retention of urine were among the most constant symptoms, and those most afflicting to the patients. The disease was not fatal in its nature.

Emetics of ipecacuanha, in the formative stage of the disease, followed by a few doses of some preparation of mercury and of opium, often restored the health of the patient in a few days. More frequently, however, there was a necessity for protracted medication, of which narcotics, diaphoretics, and alterants were the leading articles, alternated with castor oil and turpentine in cathartic doses. Quinine was used with benefit in some cases.

Cold applications to the abdominal region during the first stage, followed in the next by blisters, proved the most efficient revulsives. Injections of mucilaginous fluids rendered cold by ice, were very grateful to the patients, as well as the most effectual means of arresting the tormina and tenesmus.

The inhabitants in the south and the northwest portions of the county, were visited by epidemic dysentery during the summer and autumn of the preceding year. It, however, prevailed more extensively, and was less amenable to medication. There was little tympanitis or tenderness over the abdominal region at any period during the progress of the disease. The discharges were frequent, small, mucous, and streaked with blood, in the first stage of the affection; but as the cases progressed, copious evacuations of blood often took place. In most instances, the disease was protracted in its course.

The treatment, in the southern part of the county, consisted in the use of gentle mercurials, followed by rhubarb as a cathartic, with vegetable astringents, absorbents, carminatives, and mucilaginous injections containing laudanum. Alkaline baths were used daily. Castor oil was inadmissible on account of its griping effects. In the northwest section, profuse blood-letting, large doses of opium frequently repeated, small anodyne injections, fomentations to the abdomen, and the recumbent position, were the means most successful in controlling the affection. When the cases assumed a chronic form, small portions of spirits of turpentine and tincture of opium did much towards restoring health.

Typhoid, or *enteric fever*, was epidemic in 1851, at Germantown, and in its suburbs. Diarrhœa usually supervened on the second or third day after the appearance of the fever, previously to which the bowels were exceedingly sensitive to cathartic medicines. After the third day, bowel affection almost invariably supervened; in some instances rapidly prostrating the vital energies, and inducing a state of collapse from which the patients could only be restored by the most prompt and energetic meas-

ures. A majority of the cases, however, were, in men, often controlled by medication, and, although running a somewhat protracted course, finally terminated in convalescence. The fever was of a low type, with regular evening exacerbations. There was great uniformity in the development, progress, and decline of the different cases; all running through the same stadia, and occupying about the same number of days. No treatment instituted appeared to exert any marked influence in cutting short the disease.

Mild alterants, diaphoretics, opium, quinine, camphor, astringents to restrain colliquative diarrhœa, and revulsives, constituted the treatment.

July 5th, 1852, a female arrived in Dayton, from Sandusky, where *spasmodic cholera* was prevailing at the time, with symptoms of the disease. She put up at an Irish boarding-house, and in a few days was restored to health. On the 8th of the same month, her nurse was attacked by the disease, and died in the evening. Two inmates of one room, and one of another—laborers upon the Dayton and Western Railroad, who made this house their place of lodging—were also attacked, and died before morning. Three other attacks occurred in the same house within the next ten days, and terminated fatally in a few hours. In these instances, the affection was confined to the Irish population. The house was large, and contained a great number of small rooms; each of which, in the department occupied as a boarding-house, served as a dormitory for six or eight persons, upon whom the epidemic preyed with great violence. Every case terminated fatally. Although in the midst of a dense population, the disease did not extend beyond the precincts of the boarding-house.

Cutaneous erysipelas, amenable to medication, made its appearance in the autumn of 1852, on the east side of the Miami river, in the northern part of the county, and extended to the table-land reaching into Miami county. The disease commenced with rigors, followed by high febrile reaction, and pain in the parotid and sub-maxillary regions. In twenty-four or thirty-six hours the characteristic blush appeared upon the surface, and exhibited a strong disposition to extend. The secretions of the chylo-poietic viscera were greatly perverted or wholly suspended, associated with tumefaction of the throat. The fever was sthenic in character.

When the disease of the skin was limited in extent, a vesicated surface, surrounding it, would arrest it. If, however, the erysipelatous action had invaded the face and scalp, tinct. iodine proved the most successful in arresting the morbid process. The constitutional treatment consisted in correcting the vitiated secretions, by the use of alterants, sedatives, and diaphoretics.

After being developed in a family, the disease exhibited a strong proclivity to extend, and in many instances it attacked every person in the house. Peritonitis was not of frequent occurrence. One case proved fatal five days after accouchement. The attending physician had recently recovered from an attack of erysipelas, and at the time, was daily visiting patients affected with it.

On reviewing the diseases which have occurred in Montgomery county, in 1853, I find that a certain class of cases extended through the entire year, with some degree of uniformity; others, depending upon transient causes, were confined to a limited period; while all, during the summer and autumnal months, exhibited the perturbating influence of malaria. Affections referable to the effects of this agent upon the animal economy, were largely in the ascendency over any other one form of morbid action, sustaining to the whole number of seizures, about the following proportions; *viz.*, July, 1 to 6; August, 1 to 4½; September and October, 1 to 1; November, 1 to 5; December, 1 to 10.

The first quarter of the year, was remarkable only for an absence of the usual number of inflammatory affections common to the above-mentioned period. The inhabitants enjoyed a remarkable exemption from disease.

The first half of the second quarter presented several varieties of skin diseases, of which *rubeola* and *roseola* were the most prevalent. These, when uncomplicated, usually required but little medication.

Cholera infantum made its appearance about the middle of June, and ran high in the numerical scale of disease for the third quarter, furnishing more than an average number of cases over any one of the five preceding years. One-fourth of all the cases treated by me, in July, August, and September, were "summer complaint." After attaining its acme of prevalence, about the middle of July, this affection gradually declined, and

entirely disappeared late in September. Some of the first cases were complicated with rubeola and roseola, which greatly enhanced the inflammatory element of the cholera infantum. During the month of August, dysentery occasionally became engrafted upon this disease—usually the result of injudicious medication, or improper, crude articles of diet.

This affection was not confined to the city and large towns, but prevailed indiscriminately throughout the county; there having been about as great a relative number of infants attacked in the rural districts, as in Dayton.

Mercurials, antacids, and anodynes, are the articles most frequently used in the treatment.

I, however, place more confidence in sugar of lead and morphia, in controlling "summer complaint," than in any other combination. The former exerts a soothing, sedative influence upon the stomach and bowels by contact, and upon the heart and arteries by sympathy. In the first stage of the disease, from one half to two grains, given every hour or two in a drachm of some aromatic tea, usually arrests the nausea and spasm of the stomach, and suspends the action of the bowels, in a few hours. Five drops of a solution containing ten grains of sugar of lead to the ounce of water, is often retained when all other articles are rejected with vehemence. I generally add morphia to the above, when it fails, after a few hours, of accomplishing the object desired. The latter, when carefully adapted to the age and condition of the patient, rarely fails, in my hands, of effecting a speedy cure. Morphine and bicarbonate of soda exert a most salutary influence in cases which are aggravated by the presence of acid in the *primæ viæ.* I have rarely found it necessary to push mercurials to any considerable extent. When their use is indicated, calomel appeared to be the most eligible preparation.

I have learned to rely upon revulsive, or derivative medication, both in the acute and the chronic forms of cholera infantum, with a confidence second to that entertained for few other adjuvants. Mild sinapisms and stimulating embrocations to the abdomen, are efficient elements in the treatment, while tepid alkaline baths, in the early stages, will often equalize the vascular and nervous influences, abate the fever, and suspend the disorder of the stomach and bowels, when all other methods of treatment fail. After this, the appropriate remedies may be administered to ensure a speedy restoration.

When this disease assumes a chronic form, an arid, furfuraceous state of the skin is one of the formidable barriers to ultimate convalescence. Nothing will remove this condition half so speedily and effectually as saline baths and friction to the surface, morning and evening.

Injections were occasionally found highly valuable in the latter stages of the disease, but seldom subserved any important end in the first.

Hydrocephalus occasionally supervened upon the first, but most frequently upon the third stage of cholera infantum. From the great difficulty of diagnosis in the inception of this affection, and the imperfection of our knowledge concerning it, few cases were saved.

In this connection, I may add, that about the 20th of October—one month from the time I saw the last case, and during a period of hot weather in the Indian summer—cholera infantum reappeared and was quite prevalent for several days. The cases were by far the most obstinate of the season, and demanded a more liberal use of mercurial preparations than those which occurred earlier.

In the southern part of the county, along the valley of the Miami, and extending as far north as Alexandersville, *dysentery* ushered in the third quarter of the year. After prevailing for a short time sporadically, the affection became epidemic and continued with great virulence throughout the season. A majority of the cases were among children. It was exceedingly fatal. When it supervened upon previous acute disease—as, for, example, cholera infantum, the prognosis was exceedingly unfavorable. Such patients rarely, if ever, recovered. The same relative mortality did not obtain among adults.

In this latitude, we have periodical diseases to contend with during most or all of the year; yet, they are much more prevalent at certain seasons than at others. *Intermittent* and *remittent fevers*, and *dysentery*, made their appearance about the first of July, and were the prominent diseases of the following quarter. A majority of the first class of cases were among persons under fifteen years of age, and remarkable only for their mildness and strong proclivity to return on the seventh, fourteenth, and twenty-first days. In some instances, these periodicities were announced by convulsions, but most of the cases were uncomplicated, and yielded promptly to quinine. To ensure a speedy convalescence

and prevent a return of the paroxysm, the daily use, for a fortnight, of some tonic and anti-periodic medicine, was indispensable. Different preparations were in favor with different practitioners. Among those most worthy of confidence, may be enumerated iron, gentian, arsenic, strychnia, and sulphate of zinc.

Bilious remitting fever is becoming less frequent and severe. During the past year it was only met with occasionally. The cases were mild, uncomplicated, and yielded in a few days to medication.

The first idiopathic case of typhoid fever in Montgomery county, concerning which I can obtain any definite knowledge, occurred in Dayton in December, 1850. It was well marked, and terminated favorably after four weeks. From that time, the disease was only of occasional occurrence, until the first of October, 1853, when the cases became more frequent; and now, are almost of daily occurrence in and about the city of Dayton. It has been the leading disease of the fourth quarter of the year. It thus far, has been rather mild in character, running through its various stages with much uniformity. Few deaths have occurred in proportion to the number of attacks. In its formation, it presents two varieties. In the first and most frequent, there is general *malaise;* anoraxia; pain, more or less severe, in the head, back, and lower extremities; indistinct rigors, alternating with flushes of heat, which last but a few moments; dry, harsh skin; tongue covered over the dorsum with a thin, light-yellow, fur, substance of the organ often enlarged; bowels torpid or constipated. During this stage, the circulation often remains undisturbed. All these symptoms, and especially those pertaining to the nervous and the vascular system, are greatly aggravated in the evening and night. Occasionally, however, after running on in this manner for a few days, the exacerbations may change to the morning. These symptoms increase in severity from seven to ten days, when the vascular system begins to sympathize in a marked manner, the pulse assuming a uniform frequency, ranging from 100 to 110.

Superadded to all these, in the second form of supervention are catarrhal symptoms. The fauces and pharynx, as far as the parts are visible, are of a scarlet color, and there is slight hoarseness of voice and frequent cough, with mucous expectoration.

In some of the milder cases, the above symptoms continue without any essential melioration or aggravation—with the excep-

tion, perhaps, of a disappearance of the rigors—throughout the entire course of the affection, which occupies from four to eight weeks. In rare instances, the patients are able to sit up, and even go about the room, several hours of each day. The characteristics of these cases are, quick, frequent pulse, ranging from 110 to 120 beats per minute; dry, red tongue; torpid bowels; skin dry and above the natural temperature; absence of appetite and prostration of the vital energies. Some attacks have been so mild, and the transition so imperceptible, that it became no small task to determine the precise time of departure from health, or that at which convalescence was established.

The graver forms of typhoid fever, however, leave no grounds for ambiguity, concerning their true character and tendencies. After passing through the formative stage, without exhibiting any marks, during this period, indicative of the perilous proclivity of the affection, these cases gradually, though perceptibly, grow worse. The coat upon the tongue thickens, assuming a brown or black color; tenacious mucous and, eventually, sordes accumulate about the teeth and lips; and colliquative diarrhœa, and profuse hæmorrhage from the bowels occasionally supervene as the disease advances. The skin assumes a tawny, muddy hue; it is dry, and above the natural temperature; the pulse is compressible, and ranges from 120 to 145* in the minute. At an early stage of the disease, the patient manifests a lack of interest in, and attention to, surrounding objects, associated with delirium in the evening. These mental aberrations increase as the disorder advances; the sufferer lies in a dreamy, abstracted state, occasionally giving utterance to vague and unmeaning sentences. When aroused from this condition—and, in some instances, it can only be accomplished with difficulty—he answers questions in monosyllables, soon relapsing into his former unconsciousness. At this period, subsultus and floccitation, and gurgling, and occasionally tenderness over the right iliac fossa, are present. Meteorism has existed in a few instances, but it is not by any means a uniform accompaniment of the disease. On the contrary, the abdomen is retracted until the anterior walls are in juxtaposition with the spine, and on exposing the parts, the pulsations of the aorta and its larger trunks are very distinctly visible. Some patients

* This frequency of the pulse exists only where there is pulmonic complication.

remain in this condition ten, fifteen, or twenty days, without any perceptible change.

I have not been able to satisfy myself of the existence of typhoid eruptions at any stage of the disease. In one instance, I thought I could detect a few rose-colored spots over the præcordial region, but was by no means certain. Their presence was obscured by the discoloration of the skin.

In no instance, to my knowledge, has diarrhœa been present from the beginning of the disease. The bowels are usually torpid, but susceptible to the action of cathartic medicine. After the first ten days, or until the disease has attained its acme, in a majority of cases, frequent, liquid stools are passed, of a dark-brown color and offensive odor. This looseness of the bowels lasts only a few days, and has not generally been difficult to control. If it be checked, the bowels subsequently require to be moved by the action of medicine. In several of the milder cases—and, by the way, they are often very protracted—I have had occasion to prescribe aperients every second or third day, for weeks in succession. Healthy and well-molded evacuations are often had from the bowels, many days before the patients are able to sit up, or the mind resumes its lucidity.

The indications of returning health are, cleaning of the tongue, commencing at the tip and margins; natural moisture of the mouth; and decreasing temperature of the skin. When the process of unloading itself begins at the dorsum of the tongue, and progresses by patches or scales falling off at once, leaving a red, dry surface, the dangers of a protracted convalescence, or unfavorable termination of the case, are much enhanced. In most or all of the cases, the pulse retains its preternatural quickness until the patient is able to go out The skin continues dry, and becomes furfuraceous as the patient recovers.

Quinine will not arrest the progress of typhoid fever; nor will mercurial preparations, however judiciously and perseveringly administered, always save the patient's life. I have tested the virtues of the former, most effectually, in those forms of enteric fever in which the remissions were the most perfect, joined to every other circumstance in the early stage of the disease, calculated to favor its action upon the constitution,—but without any beneficial effect. On the contrary, it appeared to enhance the dryness of the skin and redness of the tongue, and favor the development of the disease. Quinine is a most valuable auxiliary in the treatment of this affection; but it must be confined to

the latter stages, and be given in combination with camphor and other adjuvants, as a tonic. Its benign influences are here manifested in doses varying from one half of a grain to two grains.

Preparations of mercury are indispensable to the successful treatment of some forms of this fever; but I have seen more than one patient die, who at the time was legitimately ptyalized. I know of no other remedies that will correct the vitiated secretions with half the certainty of mercurials. They must form the basis of every prescription designed to operate upon the liver and the mucus follicles of the intestinal canal.

Correct the secretions, restrain the diarrhœa when present, sustain the faltering energies of life as the disease advances,—and the active duties of the physician are at an end. He must wait. The treatment of typhoid fever is essentially tentative.

Small-pox.—During the four months ending May 1st, 1854, there have been about fifteen cases of small-pox and varioloid in the city of Dayton; and according to my best information, two deaths from the former disease. A majority of the cases occurred among the Jews, and did not come under the supervision of regular physicians. These affections were mild in character, and presented little intrinsic interest. In a few instances, a protracted ophthalmia has been entailed upon the patients, threatening destruction to distinct vision. In some villages and neighborhoods west of Dayton, small-pox and varioloid have prevailed quite extensively of late. In these rural localities, they were only limited by want of material in which to reproduce themselves.

Vaccination.—Vaccine disease has been communicated very frequently in this city since the 1st of January, 1854. Nine-tenths of the cases had never been submitted to the influence of cow-pox. But little trouble, as a general thing, was necessary on the part of the physician, to obtain the characteristic pustule in those persons who had not been vaccinated before. Occasionally, however, a person was met with, whose system was proof against the poison. Nineteen-twentieths of the patients who had not been vaccinated previously, were under twelve years of age. It was rare, indeed, to find more than one or two children unprotected in any family, who, for any length of time, had employed a regular physician. Three, four, and in some instances as high as half a-dozen, were occasionally met with in the same domestic circle, who had never been vaccinated; but, without a single exception, these persons had been in

the habit of changing their physicians frequently, or uniformly patronized quacks. Persons of foreign birth were found more uniformly protected against small-pox, and set a higher estimate upon the protection of vaccination, than American citizens. The skepticism of the latter, could be traced directly to imperfections in cow-pox poison, or want of proper care and attention to vaccination.

Of those persons who had sought protection, re-vaccination was successful in a greater proportion of cases during the period under consideration, than usual. Some who had failed repeatedly in their attempts, took cow-pox upon the application of the virus. An explanation of this fact, is found in the existence of an atmospheric predisposition to small-pox during the past winter. Variola has prevailed more extensively throughout the United States during the past six months, than at any former period in the range of medical history.

Cow-pox is the mildest form of variola known; and when its legitimate influence has been exerted upon the human economy, it affords as perfect immunity from the poison of small-pox, as this disease itself. The frequency of varioloid depends upon imperfect vaccine virus. It is not a question of any consideration how the matter is inserted, so it gains access to the tissues of the skin, and is permitted to remain. The results will be the same. I have not met with any person whose system, by re-vaccination, would not become proof against the poison of cow-pox.* In some instances, it requires the virus to be inserted several times. After the first or second operation, however, a perfect pustule can rarely be produced by vaccination.

The physical phenomena of a most perfectly-formed cow-pox pustule, is no safe guarantee that it has afforded perfect protection to the system. Appearances of the most characteristic cicatrix, are equally fallacious. Extensive local inflammation is incompatible with genuine prophylaxis. These cases produce the largest scar. A depressed cicatrix, from four to six lines in diameter, with uniform margins, and having its central portion studded over with *miniature pock marks*, is the best presumptive evidence that the constitution of the individual possessing it is protected against the poison of small-pox; yet these persons often

* This remark requires qualification. I know a physician who contracts varioloid as often as he is exposed. Vaccination always takes.

contract cow-pox or varioloid. Occasionally, vaccination does not produce sufficient local inflammation to leave a relic of its former existence after a few months, and still exerts its specific effects. Re-vaccination is, therefore, the only certain test. In a vast majority of cases, the re-insertion of the virus will produce no other results above an ordinary scratch, if the poison was pure in the first instance, and the cow-pox pustule permitted to run through its regular stages undisturbed. Another class of persons, though greatly in the minority, are susceptible to the influence of vaccine virus a second, and in some rare instances a third and even a fourth time. The pustules, in these cases, sustain to the genuine cow-pox the same relation that those of varioloid do to true small-pox. Vaccination, then, should be repeated as often as the insertion of unadulterated vaccine virus will produce a vesicle; after this, such persons will ever remain protected against the contagion of small-pox. Inoculation will not even produce the disease.

Protection from vaccination does not run out. The molecular change in the human constitution is so slow, that if it is once brought under the influence of cow-pox each new atom of matter, on becoming assimilated and deposited as an integral part of the organism, will have imparted to it a principle exempting the same from the poison of small-pox. This is the broad, catholic rule, to which there are as few exceptions as any other one entering into the control of nature.

Vaccine virus will loose its virtue after being exposed a short time to the influence of the atmosphere, and an elevated temperature. The condition of the poison will favor this process of deterioration. Small quantities and thin sheets of virus, cannot be preserved longer than a few days, if submitted to a temperature above 65° Fahrenheit, in the open air. This, however, is not the case with matter in the scab, if the pustule which produced it was large and well formed. The external covering soon becomes oxydized, and assumes a light ashy color; while the interior nucleus will retain its mahogany hue and specific virtue for months. Virus can be preserved in this way much longer, and in a state of greater purity, than on quills or mineral points.

"Matter" cannot be kept pure in a liquid state longer than a few hours. In the vaccine Hospital, Brainbridge,* virus was

* London Lancet.

taken from a well-formed pustule in the arm of a healthy child, on the eighth day, and preserved in glass tubes hermetically sealed. Forty hours after, the lymph was inserted into the arms of two children, one of which died of gangrene; and the other survived phlegmonous abscesses of the axilla, elbow, wrist, and other parts of the body. Sir Thomas Wakeley and Mr. Wilson examined the pus, and gave it as evidence before a Court of Inquest, that "it had become perfectly decomposed." A scab was dissolved in water, and preserved between two glass plates, by a friend of mine, to facilitate vaccination and economize time. The pustules following the insertion of this matter for the first twenty-four hours, did not present any thing peculiar. Those persons who were vaccinated from it after this period, had extensive inflammation of the arm surrounding the point of insertion, occasionally extending to the body and tips of the fingers. In some instances, sloughs half an inch in diameter formed in the site of the puncture, associated with erysipelas of the extremity. Cow-pox poison can be preserved pure almost indefinitely, if properly excluded from the atmosphere. This may be done perfectly, by enveloping it in gutta percha, rendered plastic by heat.

As long as cow-pox matter retains the ability of producing a vesicle from the third to the fifth day, and an umbilicated pustule in six days thereafter, its protecting power against variola is just as perfect as though the poison producing it had been procured directly from the cow. If its virtue has become enfeebled by age, passing the virus through the constitution of a healthy child will restore it. If proper care be given to the selection of subjects, cow-pox poison may be reproduced in the human subject, *ad infinitum.*

In several instances, during the past season, the vesicle did not make its appearance until the eleventh day after the insertion of the virus. Upon the day designated above, a minute point made its appearance, and was followed by all the physical manifestations of genuine cow-pox. I have never seen pustules more characteristic. The virus from these pustules produced the usual phenomena of unadulterated vaccine virus in other individuals, and at the regular period.

A vesicular eruption attended vaccination in several instances. The vesicles were situated upon inflamed bases, and scattered over the entire body: some of them became as large

as a split pea. The vaccine pustule, in these cases, was usually small, though distinct and well formed. Phlegmonous erysipelas followed the insertion of vaccine virus in a few cases, some of which were protracted and exceedingly painful to the patient. These departures from the regular course of vaccination did not depend upon any imperfection in the virus used. It was recent, and produced the usual results in other persons.

The virtue of vaccine virus is not impaired by passing through the system of the negro race.*

Scarlatina.—Since the first of January, scarlet fever has prevailed as an epidemic in the eastern districts of Dayton. But few cases occurred west of the canal. These were usually mild, and in no instance fatal. In the former localities, the disease was quite malignant. Several cases proved fatal in six hours after the first manifestations of a departure from health. These were among the first attacks. The symptoms in these cases, were those which follow a powerful shock of the nervous system, produced by some potent morbific agent. In a great majority of the fatal cases, death occurred between the second and tenth days. Whatever phlogistic elements these cases might present in the beginning, after the first or second day a decided adynamic tendency uniformly supervened. The eruption in many of the fatal cases was fluctuating, often appearing and declining several times during twenty-four hours. In all of these cases, throat and skin symptoms were combined. The tissues of the pharynx never sloughed, nor did pus form in the glands about the neck. The pulse indicated the ingress of a powerful animal poison into the system. Delirium, of a low muttering character, was rarely absent. Convulsions occasionally preceded death. Organic lesions of the soft parts about the throat were not adequate to the fatal issue of these cases.

The patients which recovered from this form of scarlatina, began to convalesce from the sixth to the tenth day. Engorgement of the soft parts about the throat and the eruption upon the skin, sustained an inverse relation to each other. Some of the cases were protracted, and entailed upon the patients afflicting and fatal sequelæ.

* A recent number of the Western Lancet contains a paragraph to the following effect, viz.: "Vaccine virus is destroyed by passing through the negro constitution." This statement is either the result of gross ignorance or a willful perversion of facts.

In another class of cases, constituting about one-fourth of the whole number, the eruption was absent. These patients presented the characteristic pulse, papillated tongue, and lesion of the fauces, varying from an erythematic blush, to an engorgement of the tonsils and soft parts, almost closing the passage from the mouth to the stomach. In very many cases, the tonsils met in the median line, forcing the uvula forwards upon the base of the tongue, or backwards into the posterior nares. The mucous membrane covering these parts, was of a bright vermilion color, but seldom ulcerated. Pus never formed in the sub-mucous structure. Swelling of the external tissues and glands of the neck, was occasionally present. The skin was uniformly hot, furfuraceous, and devoid of moisture. As soon as the perspiratory function was established, the other symptoms declined rapidly. For many weeks after all other local symptoms had declined, and the little patient had returned to its accustomed pleasures, the tonsils often remained much swollen.

In addition to symptoms already detailed, the following conditions conclusively demonstrate these cases to have originated from the poison of scarlatina:—

1st. The anginose and cutaneous varieties prevailed in different members of the same family, simultaneously.

2d. An anginose case was capable of communicating to a second person the cutaneous form of the disease, and *vice versa.*

3d. These cases were always followed by desquamation of the cuticle, and, in very many instances, by regular sequelæ of scarlet fever.

4th. In every case, the patients presented the characteristic pulse and tongue of the disease under consideration.

The sequelæ of scarlatina were the following,—the enumeration being made in the order of their frequency:—

1. Desquamation of the cuticle. This was present in almost every instance, including those in which there was no eruption.

2. Anasarca and ascites were uniformly the result of exposure to cold and damp air. The most obstinate cases of these varieties were those following the cutaneous form of scarlet fever.

3. Ottorrhœa more frequently supervened after the anginose than the cutaneous cases. In one instance, convulsions preceded the discharge of matter from the external ear.

4. Hydro-thorax and hydrops pericardii were occasional sequelæ.

5. Croup and pneumonia frequently occurred in those persons who had formerly had either disease.

6. Suppuration of the parotid and sub-maxillary glands, in scrofulous subjects.

7. Cerebro-spinal meningitis.

8. Ulceration of the cornea.

9. Suppuration under the tendon of the occipito-frontalis muscle.

The treatment of this disease was based upon general principles, and it must be confessed that the results were not satisfactory. Some patients died before remedial assistance could be interposed. Others lingered from day to day, without exhibiting any satisfactory results that could be attributed to the action of the medicine. Most of the milder cases, however, were benefited by gentle cathartics, diuretics and diaphoretics, and a solution of nitrate of silver in water to the throat. There was nothing peculiar in the treatment of the sequelæ. They were much more amenable to medication than the original disease.

Rubeola.—In some parts of Dayton and neighboring districts of country, measles has been quite common during the past three months. All who have not had the disease, irrespective of age, have in many places contracted it. As a general thing, the youthful portion of the community has not suffered to any serious extent. Those advanced in life, however, have had the disease quite severely in many instances. In those persons predisposed to pulmonary difficulty, or who at the time of the seizure, were laboring under an affection of the lungs, the existing elements of disease were enhanced by an attack of measles.

In a few rare instances, mental derangement preceded and followed the appearance of the eruption. Unquestionable insanity, in one case, lasted several weeks after it had disappeared. Retention of urine in adults, demanding the use of the catheter, was occasionally present. A much larger proportion of persons have had rubeola, during the recent visitation, than usual. Quite a number of individuals have had it, of late, for the second time.

Inflammation of the lungs was the most frequent complication. The accession of pulmonary congestion or inflammation upon the decline of this disease, has in several instances proved fatal. I have nothing new to offer in reference to the treatment of measles.

Roseola.—During the prevalence of the preceding skin dis-

eases, roseola, among infants and adults, has been quite a common disease. In many instances, it scarce interrupted the usual avocations; in others, only producing temporary inconvenience, requiring little medication.

H. G. CAREY.

Dayton, Ohio, May 1st, 1854.

SHELBY COUNTY.—The following information was furnished to the Committee by M. T. Cary, M. D. formerly of Sidney, now of Cincinnati. This county lies directly north of Montgomery, with the county of Miami intervening. It lies between 40° 10′ and 40° 30′ north latitude, and between 6° 55′ and 7° 20′ west longitude from Washington.

Topography.—Shelby county is situated in the center of the second tier of counties from the western border of the State of Ohio, embracing a territory of about one hundred square miles, and containing a population of 14,000. The Great Miami river enters about the middle of its eastern line, and traverses a rich, densely populated district in a southwest direction, to the center of the southern limits of the county, where it emerges and is soon joined by Loramies creek, a stream of considerable magnitude. The immediate valley of the Miami is alluvion, of variable thickness, resting upon immense beds of gravel and sand, and is from one-half to two miles in width. It is gently undulating and skirted by gradual acclivities or abrupt bluffs of diluvial formations, separated by deep gorges, which give the county, while covered with its primeval forest, quite a picturesque appearance. These hills and high grounds seldom rise above the adjacent level districts and gradually extend back, forming the second terrace or table land.

Loramies, the principal stream of the north and western parts of the county, originates in the swamps and marsh grounds of the northern section, in which it abounds; meandering to the southwest, it courses along the western margin for several miles, and by a gradual convergence joins the Miami just within the county. The head of this stream interlaces with the branches of the St. Marys, the waters of which flow into Lake Erie; deepening the crest of the water-shed dividing the basins of Lake Erie and the Gulf of Mexico. It is at this point that the basin of the north deviates from its usual curve and penetrates further into

the south. The banks of the Loramies, for many miles from its origin, are low and irregular, giving the water which flows sluggishly in its channels an easy exit to spread over the neighboring lowlands, in many places to a great distance. As the stream descends to its confluence with the Miami, the banks become better defined, and retain the current, except during freshets.

In the western part of the county, where this creek is passed by the Miami Canal Extension, there is a dam constructed across the stream, and embankments thrown up, so as to raise the water fifteen feet, on a level with that in the canal with which it communicates, forming an artificial lake covering an area of 2,500 acres of land, at an average depth of five feet. The back-water extends along the channel of the stream for many miles, and covers the adjacent country; which before its construction, being low and marshy, annually yielded immense crops of vegetation. These are decomposed upon the ground during the summer and autumnal months, and evolve large volumes of gases peculiar to such a process.

The country intermediate to the Loramies and Miami river is watered by Turtle and Plum creeks, streams affording limited manufacturing privileges; the former emptying into Loramies and the latter into the Miami river. The southeast section of the county is traversed by Musquito creek, a small spring stream, abounding in miniature rapids, and furnishing fine water power. It flows northwest, and empties into the Miami opposite Sidney.

The Miami Canal Extension enters the county at its southern border, and passes to the northwest corner of the county, where it emerges into Mercer; and after extending a short distance, arrives at the first lock opening into the Lake basin, and also the north terminus of the summit level. Entering into this, above the last series of seven locks directing the water towards the gulf, in the southern part of the county, is the feeder; a deep channel excavated along the north bank of the Miami river, for twelve miles, to a dam thrown across this stream near its advent to the county. The reservoir thus formed is not extensive, and is principally confined by the banks of the river. Its object, as well as that of the Loramies reservoir, is to furnish the summit level, 512 feet above low-water mark in the Ohio river at Cincinnati, with a sufficiency of water to enable boats to pass during the dry season. The water in this feeder—and the same remark is equally applicable to the Miami Canal Extension, extends far back into the ravines and deep gorges

formed between the hills by the water which rushes in torrents down their declivities during the wet seasons, after covering many acres of land.

The valleys of the Miami, and the streams which are tributary to it in the county, together with the neighboring hills, are dotted over with bowlders, from two inches to fifteen feet in diameter. Some alluvial marsh grounds annually yield large crops of these stone, which have to be removed before the soil can be tilled. They are upheaved by the frosts of winter.

Remote from the streams, the county is generally level. The soil is shallow and rests upon an argillaceous bed of great thickness, which is almost impervious to water, giving the impression—though the whole county is over 500 feet above the Ohio at Cincinnati, and in the immediate vicinity of the highest grounds in the State, Logan county—that the land is low.

Shelby county rests upon the upper Silurian. No stone, except those imported from the north by icebergs, is to be found in the north and west portions of it. The bed of the Miami, in the lower section of the county, is formed of stratified rocks, consisting of calcareous and silicious materials. They occasionally *crop out* low down in the river banks, are of a dark drab color, friable, and abound in organic remains, differing from the fossils found lower down in the cliff formations.

The hills in the vicinity of streams are composed of bowlders, coarse gravel, and tenacious blue clay, variously combined with vegetable mold.

The water used for domestic and culinary purposes is chiefly obtained from wells, springs being of rare occurrence off of the water-courses. In the southern half of the county, it is surcharged with carbonate of lime, and occasionally impregnated with iron. This latter obtains more constantly in the spring-water than that drawn from wells, and gives a coat of super-carbonate of iron to the pebbles of the channels leading from them. On the table land, removed from the streams, the wells being sunk through uninterrupted beds of clay, from ten to fifty-five feet thick, the water contains more or less argillaceous matter in suspension, and is turbid, of a cerulean color, with an insipid taste. The water "comes in" through strata of clay, or is found on piercing them to the gravel. Carbonic acid gas is often found pent up between these strata, at variable depths from the surface of the earth.

There are no great assemblages of people crowded together in

any one locality. Sidney, the shire and largest town, is situated upon the second terrace, on the west side of the Miami river, about the geographic center of the county; and numbers 1,500 individuals. It is environed by a beautiful chain of hills, which rise eighty or ninety feet above the bed of the river, and are embellished by neat white cottages and verdant gardens, presenting a cheerful and animated appearance. The inhabitants of the county are usually intelligent and industrious, chiefly engaged in manufacturing and agricultural pursuits.

The early settlers annually suffered seriously from autumnal fevers, which invariably made fearful ravages among them. But as the dense forests—composed in the bottoms principally of the different varieties of poplar, ash, sugar, buckeye, hackberry, and walnut, and on the table lands of beech, oak, and hickory—have given place to fertile fields, verdant meadows, and blooming orchards, these attacks have become uniformly less severe, though never wholly disappearing. Those residing upon the eastern side of bayous, streams, and boggy grounds, continue to suffer most.

The construction of artificial lakes and water-channels in this county, prove that submerging a malarious district, together with all the vegetable productions which it is capable of yielding, is strictly a sanitary process. The low and wet districts embracing the northern range of townships in which Loramies originates, and the marshy country traversed by it for the first twelve or fifteen miles of its course, have ever been proverbial for the great number and grave character of malarial seizures among their inhabitants.

The bed of the creek, swales, and adjacent swamps, from which large volumes of miasm were annually evolved and wafted by the prevailing winds to distant elevations, or settled like some fell incubus on the surrounding lowlands, to perform a work of destruction upon the occupants, are now submerged; and the broad expanse of fresh water thus spread out presents an absorbing surface, which will ever be a sure guarantee against the accumulations of noxious emanations in that vicinity. The currents of air which this unobstructed sheet of water will ensure, must tend not a little to facilitate this sanitary process. The same facts tending to establish this position, have been observed since the completion of the St. Mary's reservoir—twelve miles further north, and probably the largest artificial collection of fresh water upon the globe. In

both cases, the beneficial results have been so great, and the general health so decidedly improved, that those persons who were most furious in their opposition to these improvements, on account of the supposed evils which they would produce upon the hygiene of the country, now willingly concede the happy results secured to society by these artificial lakes.

EPIDEMICS.—Marsh miasm may strictly be styled the parent cause of epidemics in Shelby county. The diseases resulting from its influence upon the animal economy, often assume an epidemic form and prevail as such, from simple neuralgia through all the different grades of intermittent and remittent, to the most severe and malignant forms of congestive fevers. Intermittent fever is one of the most constant endemics of the Miami valley, but it often assumes an epidemic character in the summer and autumnal months; especially, if the early seasons have been favorable to the production of vegetable growths, or are followed by copious rains in the months of July and August; vegetation is thus either rendered more luxuriant, or its growth is arrested by being submerged by artificial pools. As the water subsides and leaves the earth's surface exposed to the sun's rays, vegetable decomposition takes place, and with it a corresponding evolution of malaria. The poison thus liberated, acting upon constitutions already enfeebled by the heat of summer, produces frequent, successive attacks of ague.

As the season progresses, the vegetable substances which have by the "*early and latter rains*" attained great perfection, are precipitated in the month of September, by their own luxuriance. As their succulent stems begin to decay, remittent and congestive diseases make their appearance. The last-mentioned affection prevailed extensively during the fall months of '47 and '52. Intermediate to these dates, sporadic cases were of frequent occurrence. The former period was the first season that *pernicious chills* assumed an epidemic character here. In addition to the usual symptoms resulting from determination of blood to one or more of the great trisplanchnic cavities, in many instances in the first epidemic, there was present complete hemiplegia; in other cases, paralysis of an extremity or organ, as the leg or tongue. By the prompt and energetic interposition of remedial agents, the disease seldom proved fatal, but resulted in

slow convalescence after the third or fourth day. It is unnecessary to amplify further upon the treatment than to say, that the usual articles were perseveringly adapted to the indications of the various stages, with quinine as the "*sheet anchor*."

Early in the spring of 1845, *small-pox* prevailed as an epidemic in Sidney. There was nothing peculiar about this visitation, except that most of the cases assumed an asthenic form, rendering the process of maturation slow, and in some instances, imperfect; one of the last-named cases proved fatal.

Phlegmonous erysipelas appeared in May, 1851, and also in the winter of '51 and '52; and prevailed at each time for a few weeks, as an epidemic. The attacks were not very numerous. It proved fatal in one or two instances. The favorite seats of its attack, were the face, hairy scalp, and upper extremities. The tumefaction and mental aberration were often very considerable, and the accumulations of matter, and formation of extensive sloughs of cellular tissue, rendered it necessary to lay open the parts by free incisions, and support the rapidly-failing strength by tonics and stimulants. Alterants and correctives were always indispensable to the safety of the patient. Ice, or iced water, proved the most successful local application in the epidemic of 1852.

In July, 1851, epidemic *dysentery* appeared in the malarial districts of Shelby county, and continued for two and a-half months with unusual severity. The attacks were very numerous, and proved fatal in the proportion of three in four of all the cases under five years of age. Among adults, the disease was not by any means so fatal, but entailed upon some, who were advanced in life, a chronic diarrhœa and contraction of the rectum, which continued for a long time. Local bleeding, alterants, anodynes, laxatives, and diaphoretics, constituted the chief treatment. Our reporter used ipecacuana in emetic-doses with great benefit, when there was any considerable nausea, which was often the case.

Œsophagitis, in a mild form, made its appearance as an epidemic, in December, 1850, and disappeared in the following February. The treatment consisted in local depletion, cathartics, and free use of ice, internally and externally.

Epidemic cholera visited the county, for the first time, in August, 1852, and raged with its usual violence and mortality for three or four weeks. The disease was confined almost exclusively to the workmen on the Bellefontaine and Indiana

Railroad; and proved fatal in four-fifths of all fully-developed cases. The citizens generally, during its prevalence, were much alarmed, and troubled more or less with diarrhœa; but there were only two or three *bona fide* cases of cholera among them, one of which died before assistance could be rendered. The treatment embraced calomel, opium, stimulants, frictions, hot and revulsive applications, and electricity. The latter, when applied to the upper extremities of the patient, in collapse, would reëstablish the pulse at the wrist, which, however, would soon disappear again, after the connection was broken.

Strychnia and turpentine were, to a limited extent, more successful in this respect; the consecutive fever in the cases treated by them, was not so high as in those treated with stimulants during the stage of collapse. A mixture composed of equal parts of chloroform, tinct. opium, and tinct. camphor, was most efficient in arresting the spasms and diarrhœa.

Highland County.—Information in respect to this county, was furnished the Committee by C. C. Sams, M. D., of Hillsboro, 1852.

The winter of 1851 and 1852 was unusually cold; and the spring was cold, wet, and backward. The summer and fall were very dry, particularly the latter; and the winter was mild.

The following table exhibits the average temperature of each month of the year. It is furnished by Rev. J. McD. Matthews, Principal of Oakland Seminary.

AVERAGE TEMPERATURE OF 1852.

Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
24.62	34.91	42.87	49.25	65.41	69.47	77.00	72.80	66.32	58.33	38.95	38.21

Measles.—From January to June, this disease was epidemic in a mild form, and not attended with any severe complications. It appeared again as an epidemic during the winter of 1852. It assumed a much more malignant type than at the beginning of the year. Many aged persons died with it; and, in a majority of the cases, the complications were quite serious. In adults, great nausea and prostration occurred previous to the appearance of the eruption. In many cases it required the application of rubefacients to bring out the eruption. Sequelæ, in the form of bronchitis, pneumonia, and phthisis, have been numerous, and in many instances fatal.

Dysentery prevailed during the summer and fall as an epi-

demic. It was most severe in New Market township, a few miles south of Hillsboro, and in the northeastern part of the county, about Greenfield. Near Hillsboro, the cases were scattering, and chiefly among adults. In New Market, children and adults alike were victims of the disease. In many cases, the inflammation extended from the colon to the small intestines and stomach. In these they were difficult to manage, and sometimes proved fatal.

The complications in some of the cases were curious. In one instance, the disease appeared in a stout, middle-aged woman, a day or two before parturition, and continued with severe symptoms till its fatal termination, ten days afterwards, attended with puerperal insanity. The manifestations of madness were want of coherence in her ideas, good-humored vociferation, shouting and singing. In another case, during the course of the dysenteric symptoms, a regular tertian intermittent was developed. The patient had passed a portion of the summer in a highly malarious region, and contracted an intermittent, which, a few weeks previous to the attack of dysentery, had been broken up. Several days after the dysenteric symptoms had set in, the chill returned, followed by the fever and sweat. Each disease seemed to be independent of the other. The ague yielded to quinine after the second paroxysm, and the dysentery gave way in a few days to the usual opiate and purgative treatment.

How can this case be reconciled with the doctrine of the malarious origin of dysentery? It would seem that the malaria producing ague was different from that producing dysentery, and that both can produce their peculiar effects upon the human organization at the same time.

There is one fact connected with the progress of dysentery over this region, that is rather singular. It seems to invade the country by stages. It prevails one season in a locality more or less extensive; and the next summer it seems to start from the edge of the district invaded the year before, and spread over another portion of country heretofore exempt, and so on again the following year. This progress by regular stages has been observed in this county since 1849. During the last summer it started from the vicinity of Greenfield, and spread over Ross county as a severe epidemic. The Newmarket neighborhood, although contiguous to districts infected by the disease for the last two summers, had not been visited by the epidemic until the

past summer. The same method of progressing by stages or districts was observed in regard to cholera in 1849, 1850, 1851.

The northeastern part of Adams county was severely afflicted with dysentery during the past summer (1852). It is a hilly, limestone region, intersected by the numerous branches of Brush creek.

In Pike county, dysentery was very fatal on the waters of Sunfish, a tributary of the Scioto. The country is mountainous, and in the sandstone formation. The hills are from eight to ten hundred feet above tide-water, and from four to five hundred feet above the inclosed valleys. The cases were supposed to be more numerous upon the hills than in the valleys.

Erysipelas.—During the past winter erysipelas has prevailed to a considerable extent. The cases have usually been mild, but much more numerous than they have ever been before in this county. The parts chiefly affected were the face, scalp, and extremities. Among the numerous topical applications, the solution of sulphate of copper and the tincture of iodine seemed to be decided favorites with some practitioners.

There has been less *continued fever* than usual during the year, although certain parts of the county have not been exempt from the ravages of this unwelcome visitor.

Phthisis has been as prevalent as heretofore. Without statistics it is impossible to estimate the exact proportion of deaths from this disease; but it would seem safe to rate the mortality from tuberculous complaints as greater than that of any other single disease.

Greenfield, Highland County.—The account of this particular locality was furnished by Dr. James L. Wilson, of Greenfield, member of the Highland Medical Society, through Dr. Sams.

Dysentery made its appearance in Greenfield and vicinity about the 1st of May, 1852, and gradually increased until about the 25th of June; when it assumed an epidemic character, which continued till about the 15th of September: after this time the disease began to decline, and terminated about the 20th of October following.

The first cases were mild, with but little constitutional disturbance. The febrile symptoms were not strongly marked; the hepatic secretion was not much deranged; and the abdominal

tenderness was moderate. The treatment consisted of castor-oil and spirits of turpentine, in cathartic doses, followed with opiates by the mouth, and also by the rectum, combined with warm fomentations to the bowels, which was all that was required in most cases; a few days only being required for successful treatment.

After the disease became epidemic in its character, it presented many new features. It was usually ushered in by a chill, which was followed by high febrile reaction, which continued several days, and then assumed an intermitting type. The inflammation was not always confined to the colon, but frequently extended to the small intestines and stomach. All the secretions were deranged, but more particularly that of the liver. The tongue was coated, with red edges and tip, usually; but when the stomach and small intestines became involved in the difficulty, it had a smooth, red, and shining appearance on its surface; the abdomen became very tender and tympanitic; the discharges were frequent, and consisted of blood and serum, without any mixture of fecal matter; and the thirst became very urgent. Dysuria was frequently met with, and in some cases entire suppression of urine, which required the use of the catheter.

Depletion with the lancet was indicated in but few cases. When the patient was robust, with a full, strong pulse, hot skin, severe pain in the head and back, venesection was attended with decided relief; moderating the febrile action, and relieving the head and back. When abdominal tenderness existed, and particularly if attended with nausea, local bleeding by cups was decidedly useful.

Cathartics were useful in clearing the stomach and bowels of their irritating contents. The purgatives preferred were castor-oil and spts. turpentine, calomel, rhubarb, olive oil, and Epsom salts; each having its advantages in particular cases. Opium and ipecac. were also found useful, either in combination or by alternating them with one or other of the purgatives. Quinine was given with benefit when the fever assumed an intermittent, or decidedly remittent form. After free evacuation of the bowels, great reliance was had on opium, with or without ipecac. as the case might require. Warm fomentations to the bowels were useful, and injections into the rectum, of opium or some of its preparations, in starch-water or mucilage, were found indispensa-

ble. Both vegetable and mineral astringents were useless or injurious.

Farinaceous diet, with milk, was used, and mucilages for drink.

Convalescence was generally tedious. The patients generally recovered. Those who did not were all infants, except two, in the practice of our informant, and they were under twenty years of age.

Gilboa, Putnam County, Ohio.—Information respecting this place was received from Dr. L. W. Moe, 1852. It is situated in the region which is drained by the small tributaries of the Maumee, near the dividing-ridge between the waters emptying into this river and those of the Ohio. It is level and wet; intermittent and remittent fevers are the diseases usually found in this locality previous to the last year.

Cholera.—This disease made its appearance here on the 6th of August, 1852, and continued until the 21st. During that time there were nineteen cases of well-marked cholera, and thirteen deaths, in a population of six hundred. Many fled on the appearance of the disease, until only forty remained behind. Of six physicians in the place, all fled but two, our informant and one other, the latter of whom died. Astringents, stimulants, and counter-irritation, were the means mostly used. Strychnia was tried in two cases, and, according to our reporter, without benefit. It was given in quarter-grain doses, repeated in one hour, but without any visible effect. Creosote appeared to benefit one case which was almost hopeless. There was a total suppression of urine in all cases.

It was attributed to a local cause. In the locality in which it made its first appearance, there was a large damp cellar, where there was a considerable amount of filth and decomposed vegetable matter.

After the cholera, during the remainder of the season, *diarrhœa* prevailed to a great extent.

In the latter part of this year, *typhoid fever* existed to a considerable extent. In some cases, it was of a very malignant character. It was usually ushered in by a chill. Mild evacuants, such as blue mass, followed with castor-oil and spts. turpentine, were made use of. Then ipecac., Dover's powders, camphor, and carbonate of ammonia, were used, with counter-

irritation. When the skin became dry and hot, sponging with tepid water was beneficial. The production of a free perspiration in the commencement of the disease was also thought to be beneficial; but the mode of accomplishing it is not stated.

Batavia, Clermont County.—By a letter from Dr. McMillen, of this place, the Committee is informed that during the year 1852, he encountered the following diseases, viz. typhoid, scarlet, remitting and intermitting fevers; dysentery, hooping-cough, measles, and consumption. The typhoid and scarlet fevers prevailed very extensively; the latter in all its forms. Typhoid fever is becoming much more frequent, and bids fair to be a regular disease of the country. The reporter, in speaking of typhoid fever, probably alludes rather to the grade of action, than to any *specific* fever. Dysentery appeared in a much milder form than it did during the previous two years.

Belmont County.—Information respecting this county has been furnished to the Committee by direction of the Belmont Medical Society. This energetic and flourishing Society appointed a committee for the purpose, of which Dr. Henry West, of St. Clairsville, was Chairman; and much credit is due to the Society for the interest taken in the subject.

St. Clairsville.—Reported by Dr. Henry West. This village is situated on the highest portion of land in the healthy and hilly district between the valley of Beaver river, which empties into the Ohio river, in the State of Pennsylvania, and the valley of the Muskingum. This county has an average elevation of eleven hundred feet; some portions attain to twelve hundred and eighty-four feet, and the elevation of this place does not vary much from that amount. It lies on a ridge dividing the waters of Wheeling creek on the northeast, from those of McMahon's creek on the southeast,—both of which empty into the Ohio directly,—and the tributaries of the Muskingum on the north, northwest, west, and southwest. There are no swamps or stagnant pools in this region which can give rise to miasmatic diseases, nor any stream of magnitude within four miles of the town. The soil is what has been termed rich limestone, and is productive of every variety of vegetation the farmer or horticulturist can

desire and expect in this climate. No circumstances exist, of a local character, which can be supposed to favor the production of epidemics of any kind.

Cholera morbus.—In July, 1852, this disease made its appearance in the town and vicinity, and continued for two weeks with greater severity than ever before witnessed by our informant; it proved fatal, however, in only two cases. The symptoms appeared more like epidemic cholera than those of the ordinary "cholera morbus."

Symptoms.—In most cases the patients were attacked with diarrhœa; rather moderately at first, without pain or sickness, which continued from four hours to as many days, before any other symptoms developed themselves sufficiently to give alarm. The extremities then became cold and of a darkish color; the tongue pale or bluish, with a white coat over it, as though chalk not very finely pulverized had been sprinkled over its surface; the pulse weak, easily increased in frequency, and compressible. They would not admit that they had any pain, and would insist that they were not sick, but only weak. Extreme prostration, with retching and vomiting, would then occur suddenly, followed by a discharge of a milky or rice-water appearance. Voice became husky, with excessive thirst and extreme restlessness. In the two fatal cases, the hands became shriveled as in genuine cholera. They lasted about twenty-eight hours, after rapid prostration. One was an adult, and the other was aged eight years.

No local *cause* could be ascertained, to account for these attacks. The summer was not unusually hot; the weather was warm, with occasional refreshing showers.

For many years, say commencing about 1833, a great disposition has existed among the people to disease of the bowels, more especially in the summer and autumn months, and was probably connected with the prevalence of the cholera, since that time, in some mysterious and unappreciable manner. No age or sex appeared to be exempt from the disease.

Treatment.—The patient was directed to keep his bed and lie quietly, not to move a muscle that could be avoided; and stimulating applications were directed to the bowels, until warmth was produced, if possible. The following prescription was administered, with some changes, according to circumstances.

℞. Calomel, gr. vj.
Tannin, gr. xij.
Opium, gr. vj., or its equivalent in morphia. M.
Ft. pulv., vj.

Of which one was given every half-hour to three hours, according to the urgency of the symptoms.

If retained after giving from three to four, the opium was withheld or reduced in quantity. Acetate of lead and opium were used in some cases with good effect; but the vegetable astringents were preferred. Our reporter was under the impression that calomel was not of much consequence in the early or active stage of the disease, but useful, after urgent symptoms were relieved, for the purpose of exciting the secretions. Cathartics were not considered as proper until the diarrhœa was arrested for twenty-four or thirty-six hours. Rhubarb and magnesia and castor-oil with turpentine were preferred, when necessary.

The duration of the fatal cases was from twenty-four to thirty-six hours, while those that recovered lasted from four to six days.

Typhoid fever prevailed during the summer and fall of 1851, to a considerable extent. The *cause* giving rise to and favoring the propagation of the disease, seemed to be connected with the meteorological condition. The season was remarkable for drouth, the water became very scarce and impure, being of a milky color, and disagreeable both in taste and smell. The streams of water where the disease was severe became dry, except some stagnant ponds, which became green and filthy, producing a very disagreeable effluvia, arising, in part, from dead fish contained in them. In this vicinity, the majority of the cases was on the water-courses, which were nearly dried up. The disease was not very fatal: only one case died in a very general epidemic.

In almost all cases it commenced with pain and tenderness in the bowels, which was occasionally, however, preceded by pain in the head.

The duration of cases was from seven to twenty-eight days; a majority, in the practice of our informant, lasted from fourteen to twenty-one days, before the symptoms gave way and convalescence commenced. He commenced the treatment with an emetic and alteratives, followed by quinine as early as possible.

In the summer and fall of 1852 the disease prevailed; but it was more confined to the uplands, and of a lower and more tedious type; very seldom yielding short of twenty-one days. The

mortality, it was thought, did not exceed one in twenty cases, probably less.

Dysentery appeared in many portions of the county, and in the villages. Nothing unusual attended the cases. The only alteration made in the treatment this year (1852) was in the exclusion of mercurials. These articles, which had so often answered a good purpose in past seasons, did not have a good effect. The articles relied upon, mainly, were opium or its preparations, and vegetable astringents. Injections of various kinds were used; such as a solution of nitrate of silver, starch, and laudanum, and a solution of iodine; but no preference is expressed by our reporter.

Erysipelas.—During the years 1851 and 1852 this disease has occurred at various times as an epidemic. It was of the phlegmonous character; and some cases proved fatal, two of which were from gangrene. It varied in duration, in different cases, from ten to forty days.

BARNESVILLE AND VICINITY.—The condition of this locality was reported by Dr. E. Williams, of Barnesville, one of the committee of the Belmont Medical Society.

During the years 1850 and 1851, typhoid fever prevailed in this locality. It is stated that there was nothing peculiar in the symptoms distinguishing it from the same disease of past seasons, in character or treatment. The mortality was thought to be about six to eight per cent.

Scarlet fever made its appearance in the early part of the year 1851, and continued for about eighteen months without any well-marked intermission, although the cases were not very numerous. The character of the symptoms varied very much—from the mildest to the most malignant forms. It seemed to be complicated with bilious remittent; the symptoms of one or the other predominating, according to circumstances. It was principally confined to children; yet adults were not exempt. It is stated that many died under the care of a quack, while those under regular treatment from the beginning, generally recovered. Local and general conditions, and seasons of the year, seemed to exert little or no influence.

The treatment consisted of diaphoretics and aperients; but the particular means used is not reported.

Dysentery appeared early in the summer of 1851, about ten

miles southwest of this place, and spread rapidly towards it until about the first of July, when it reached its vicinity. It continued until late in October. The symptoms were of a typhoid character, and the secretions much deranged. The irritation of the mucous membrane was confined to the rectum in the commencement, but extended itself rapidly through the other portions of the intestinal canal, and sometimes resulted in ulceration.

When seen in the early stage, it was generally easily subdued by blue mass, opium, and laxatives. But when neglected, it often became severe, and required from ten to twenty days in its treatment. Opium and alteratives in the earlier, and quinine in the latter stages, were the principal agents upon which we had to rely. Mineral and vegetable astringents were both used, but not much reliance was placed upon any of them by our reporter. Enemata of starch and opium, with acetate of lead and solutions of nitrate of silver, as circumstances indicated, were thought to be valuable. Epsom salts were employed as a laxative when the symptoms were of a sthenic character, and castor-oil and spirits of turpentine when they were typhoid.

The season was remarkable for drouth, etc., as described in the account given by Dr. West, of St. Clairsville. During the prevalence of the epidemic, the wind was nearly all the time from the southwest; and on the northeast bank of a creek lying in the district of our reporter, and the upland joining for some mile or two distant, almost every family was visited with the epidemic to a greater or less extent; while on the southwest bank and the whole ridge adjoining, not a single case occurred; and when the fall rains came on, and washed away the decomposing matter, the disease immediately disappeared. It was thought that the unwholesome quality of the water for drinking and culinary purposes, and the offensive effluvia arising from those stagnant ponds, were prominent agents in creating and spreading the disease.

In the summer and autumn of 1852, the same disease again prevailed in the same region, but only to a moderate extent, and much milder in character.

Measles commenced in this locality during the winter, and continued until the middle of summer. It exhibited nothing peculiar, except that during the spring it was often complicated with pneumonia and bronchitis, which were rather obstinate.

Cancrum Oris.—Several cases of this disease occurred in May and June. Most of them were checked early; but some were

attended by excessive sloughing, and one with loss of several teeth and a portion of the maxillary bone above and below. Only one case was seen by our reporter that terminated fatally. The cases very nearly, or quite all, followed the measles, and generally occurred in patients who had not had medical treatment. Mercurials, followed by quinine internally, and nitrate of silver in solution, locally, with a solution of chloride of lime or soda, was believed to be the best treatment. The only fatal case had this treatment, with the exception of mercurials, which were not given at all; and the reporter says it was the only case within his knowledge treated without them; and from this fact he is inclined to the opinion that the great dread of this class of remedies in the disease is imaginary.

Jacobsburg, Belmont County.—The brief account of this locality was condensed from facts furnished by Dr. John A. Weyer.

Dysentery prevailed as an epidemic in this place and vicinity, from the 1st of September to the middle of October, 1852. A short time previous to its appearance, there were several very warm days, followed by very cool nights; and the reporter is inclined to believe this condition was the cause of the disease which followed immediately after. He does not think it could be traced to any *local* cause. The section in which it prevailed is high and hilly, with limestone soil, such as is common to that section of the State; and the water is considered good, but, of course, highly impregnated with calcareous matter.

Its attacks were indiscriminate upon the old and young, and both sexes.

The duration was from three or four days to three weeks,—of the latter, there were but few cases; and generally they terminated in from seven to ten days.

The indications appeared to be, to use astringents, anodynes, and alterants; and they were given in the following combination:—

℞. Tannin, gr. vj.
Acet. morphia, gr. ¼.
Calomel, gr. ij. M.
Ft. pulv. One to be given every four hours.

Mucilaginous drinks were allowed freely; also an infusion of blackberry root as a drink.

The powders were continued until a slight impression was made on the gums, or an alteration took place in the discharges; when the calomel was omitted, and the anodyne and astringents were continued. It was not a severe form of the disease, and but few died.

INDIANA.—The following account of this State, and the diseases of Wayne county for 1852, were furnished by Dr. Nathan Johnson, of Cambridge city, one of the members of this Committee, and addressed to the Chairman :—

I will first give you a general, topographical and geological outline of the State, as given by Dr. Fisher, in a small work accompanying a recent map of the State.

"The general features of the State are those which pertain to all countries where mountain, in the strictest sense of the word, is wanting; for, if we except the river-hills and the accumulations of sand on the southern shore of Lake Michigan, no portion of the country has any continuous or definite elevation which even a florid imagination could dignify by such a term; and all of mountain that really appears, is a few isolated 'knobs' which only serve to diversify the scenery. Nearly two-thirds of the State is level, or at most undulating; and a most singular feature of the country is the absence of any water-shed or dividing-ridge, such as almost every geographical region presents, from which the waters flow in different directions; still, however, the country has continuous slopes of great extent; and the difference in elevation of the highest land and the Ohio river at the Falls, is nearly six hundred feet; and a considerable difference is observed (about seventy feet) between the level on the Ohio at the Falls, and at the mouth of the Wabash, the latter being the lowest.

"The river-hills, of which previous mention was made, extend at various distances from, and parallel to, the courses of the Ohio and other streams, and inclose what are termed the bottom-lands, which are chiefly covered with a rich alluvial soil, and thickly set with forests. These hills, along the Ohio river, are generally as high as the highest level of the interior, often of a rugged and broken aspect, and where broken through by tributaries of the Ohio, present much imposing scenery. Behind these a table-land spreads out, what with propriety may be termed the interior of the country; and now every thing is changed. Instead

of the bottoms, with their mighty forests, the most various landscape appears; here are extensive groves of oak, ash, and other trees; there vast prairies, sea-like in their dimension, and with untroubled surface; and here the land undulates or rolls as if formed into billows by the dalliance of soft winds; and occasionally hills, arising from one hundred to three hundred feet high, remind us of a tempest-tossed sea when the waves accumulate in their might. There is such a marked difference between the different parts of the country, however, that no general description could embrace its topography; and hence it is necessary to detail its principal characteristics, and its divisions as indicated by nature.

"1. The *Ohio valley*, including that of the White Water, contains some five thousand square miles. This is a limestone region; it was originally clothed with heavy forests, and the soil in the bottoms, hill-tops, and sides, is very rich. The hills are abrupt and broken, and the numerous tributaries of the Ohio river break through them in every direction. Many of these streams in dry weather show only the marks whence the torrents have disappeared, almost as soon as the storms which occasioned them. Of this division of the State about two-thirds is good farming-land, and the residue either too hilly or the soil too poor for profitable culture. The poorest parts are the flats at the heads of the streams.

"2. The *White River valley* extends from the Wabash centrally through the State to the Ohio line, and covers about nine thousand square miles of surface. It is almost uniformly level and heavily timbered, except the western parts, where there are some prairies and barrens, and ranges of low, rugged hills. The whole valley is destitute of rock, and the soils are of the richest kind, with little that is unprofitable. Most of the streams are clear and never-failing, and water-power is generally abundant.

"3. The *Wabash valley* is the largest division, and embraces an area of upwards twelve thousand square miles. It interlocks with the valley of the White river; and the eastern portion resembles it. It is equally fertile, but more broken. The middle part has abundant water-power, but in the upper and lower it is less plentiful. From the river-hills on the Ohio to the Wabash, the surface is an inclined plane; and it is not a little curious to find streams, the head waters of which are near

the borders of the Ohio valley, traversing towards the Wabash, a river so much farther distant from their sources.

"4. The north part of the State, watered by the St. Joseph's and Kankakee, is similar in its general character to the Wabash country, but, perhaps, more swampy; and near the Lake the country has extensive sand-hills, which are covered with stunted and shriveled pines and burr-oaks.

"Indiana has numerous fine rivers; but for navigable purposes few of them, except the Ohio, Wabash, White, etc., are at all eligible. Most of them, however, afford valuable water-power.

"The *Ohio*, the final reservoir of the principal water-courses of the State, borders the whole country on the south, from the mouth of the Miami to that of the Wabash, a distance by the river's course, of three hundred and eighty miles. Between these two points few streams of any volume empty into it. The White Water joins the Miami six miles above its entrance into the Ohio.

"The *Wabash*, which rises in Ohio, runs first north, then northwest, then west, then southwest, then south, and again southwest, making the whole distance to its junction with the Ohio, upwards of six hundred miles, of which more than half is navigable. Its principal tributaries are,—from the south and east, Salamonie, Mississinewa, Wild Cat, Sugar or Rock, Raccoon, White, and Patoka rivers; and from the west and north, Little Wabash and Embarrass rivers in Illinois, Vermillion, in both States; and, in Indiana altogether, Tippecanoe, Eel, and Little rivers. White river, the most important of these, empties into the Wabash one hundred miles above its mouth; the West Fork, its longest branch, rises in Randolph county, near the Ohio line, and runs in a southwest direction, receiving in its course Eel river, Fall creek, etc.; and the East Fork, the principal tributaries of which are Salt creek, Muscatatuck, Sand creek,—Clifty, Flat Rock, and Sugar creeks, rises in Reply county, and has a western course to its junction with the West Fork—the two forming the White river proper—about fifty miles from its entrance into the Wabash.

"The St. Joseph's and its tributary, the Elkhart, pass through the northern tier of counties, and ultimately fall into Lake Michigan. The Kankakee, the principal branch of the Illinois river, rises near South Bend, and runs sluggishly through the north-

western counties for one hundred miles, and receives the Yellow river, a stream about fifty miles long: extensive marshes everywhere bound its course.

"Besides *Lake Michigan*, on the northern border, there are numerous other, but small lakes, in different parts of the State, principally to the north of the Wabash river: several of them have no outlets; they are generally clear, however, and have sandy shores and bottoms. They seldom exceed a few acres in extent, though some at the head of Tippecanoe river and near Laport cover several hundred acres. Mexancukke Lake, a beautiful sheet of water in Marshall county, is three miles long and half a mile wide; and Beaver Lake, six miles long and three miles wide, covers ten thousand acres."

The most elevated portions of the State, where the streams take their rise, are generally the most flat and wet, and in some instances inclined to be marshy.

According to the report of D. D. Owen, on the Geology of Indiana, there are three geological formations in the State. "1st. A bituminous coal formation, occupying that portion of the State west of the second principal meridian; 2d. A limestone formation (similar to the mountain limestone of European geologists) prevailing in the counties east of that meridian; 3d. A diluvium consisting of deposits of clay, sand, gravel, and bowlders, overlying, and in many places covering up the other two formations, to a greater or less depth, particularly in the northern part of the State."

From the foregoing observations on the topography of the State, you will at once conclude that intermittent and remittent fevers, diarrhœa, and dysentery are endemics of the country, varied in their intensity and malignity by the general healthiness or unhealthiness of the season. During seasons in which there is much rain in the spring and early part of summer, the streams overflow their banks, and in a measure deluge the country; and if followed by intense heat and great drouth, this class of diseases generally assumes a much more malignant form. This is especially so on the more recently improved portions of the State. In the older-settled portions this class of diseases prevails to a much less extent; and it is believed that the time is not distant when, in the progress of improvement, the inhabitants of Indiana will enjoy an exemption from disease not surpassed by the citizens of any of her sister States.

The three past years have been quite remarkable for the general good health, particularly in the eastern portion of the State, and especially in the White Water valley, the part of the State with which I am most familiar. This is no doubt owing, in part, to the fact that during that time "heavy protracted rains have been very rare, and the streams in this district have been at no time high; and the earth has scarcely been thoroughly saturated, or the ponds and bayous filled, till the great rains at the close of '52." My friend, Dr. Pennington, observes, "During a practice of twenty-seven years in this valley, I have not known any one year when the general good health was equal to that of the past."

The county of Wayne which extends to the State line on the east, is bounded on the north by Randolph, south by Union and Fayette, and west by Fayette and Henry. The surface, with the exception of a somewhat hilly portion on the southeast, is gently undulating. It is well watered by the several branches of the White Water river, five of which, in passing from east to west along the National road, through the center of the county, occur within a distance of less than fifteen miles, each being a good-sized mill stream, affording abundance of never-failing water. The streams are clear and the current rapid, flowing over beds of sand and gravel and small bowlders. The several branches have their origin in the more elevated and somewhat flat, and, in some instances, wet lands. The soil is a rich loam on a substratum of clay, and in many places, sand and gravel. In the valleys along the streams, it is alluvial. It was originally covered with dense forests of timber, such as beech, sugar-tree, oak, ash, black and white walnut, poplar, sycamore, elm, cherry, hackberry, linden, &c., together with a heavy undergrowth. But by far the largest portion is beech and sugar-tree. Stone is scarce; but, where it is found in place it is the blue limestone. Many large bowlders of primitive rock are to be found throughout the county. Along the bottoms near the streams, are occasional marshes and bayous, which, in very dry seasons, are thought to generate the different forms of fevers. Plenty of water may be found nearly anywhere by digging from eight to ten feet; and it is uniformly limestone water.

The soil is well adapted for the growth of wheat, corn, and grass. The county is in an advanced state of cultivation, producing an abundance of every variety of grain, vegetable, and

fruit, and exports largely of its surplus. In 1850, the county contained four thousand five hundred and fifteen dwellings, four thousand five hundred and twenty-nine families, twenty-five thousand three hundred and twenty inhabitants, and one thousand nine hundred and thirty-four farms.

The adjoining counties of Union, Fayette, and Henry, and Rush on the west of Fayette, are very similar in their general topography, as well as their geological formations; and perhaps as little different in their endemic diseases.

The following brief statistics of the weather are furnished by Dr. Dickey. A few days of January, 1852, were colder than the extremes of our winter months generally. On the evening of the 19th the mercury stood twenty degrees below zero, and on the following morning, eighteen degrees below. The remainder of the month was warm, varying from two degrees below, to sixty degrees above zero,—twenty-one days out of thirty-one were cloudy; and the amount of snow that fell was remarkable for this climate. February had about the number of cloudy days of the preceding month, less snow, however, and more rain. On the 11th, 20th, and 28th, there were considerable snow storms; but the temperature was such that it soon melted away. Temperature of the month more uniform than that of January, varying from eighteen to forty-seven degrees. March was pleasant; no excesses. Light snowfalls on the 17th and 19th. Temperature from twenty-one to sixty degrees. April was more unpleasant; considerable rain during the month. The last six days were very pleasant. Temperature twenty-four to seventy degrees. The first nine days of May were quite pleasant; after that heavy showers up to the middle of the month. From that to the last of the month, the weather was warm, with frequent gentle showers. Temperature from fifty to seventy-six degrees. June was pleasant, most of the month. On the 7th, 8th, and 9th, there was rain. The mean temperature sixty-eight degrees. July, like June, had no great excesses. On the 25th, however, there was a heavy shower. The mean temperature seventy-three degrees. August was remarkably pleasant. Temperature from fifty to eighty-eight degrees, the mean being sixty-nine degrees. September differed but little from August. The mean temperature sixty-five degrees. The first twelve days of October were warmer than the preceding month. On the 9th, heavy rain. The night of the 13th, severe frost. The remainder of the month was

pleasant. The mean temperature, fifty-four degrees. November was remarkable for the amount of rain. There were but three clear days in the month. The mean temperature, thirty-nine degrees. The month of December was open; but two days in succession without rain. On the night of the 22d it commenced raining, and continued incessantly until eleven o'clock the following night; which deluged nearly the whole valley, and caused a rise of water seven inches above the freshet of January, 1847. On the 24th and 25th, cloudy and misty; 26th, slight frost; 27th, flood-rise in the creek within ten inches of the former. The mean temperature thirty-one degrees. Frost occurred every month in the year.

The following is a condensed report of diseases and their treatment, as they occurred in the practice of Dr. Dickey, of Dalton. The amount of sickness during the year has been less than the one preceding. The difference, however, in the two seasons consisted principally in the prevalence of an epidemic dysentery in the summer and autumn of 1851. In the year immediately passed, there were more febrile diseases than in the one before it; the epidemic having taken the place of our autumnal fevers, and, no doubt, originating from the same cause. Three cases of scarlatina and two of parotitis have been treated. Two of the former were scarlatina maligna, and the other scarlatina simplex. They were aged respectively two, three, and five. One a male, and two females. The female aged five died, medical aid not having been resorted to until a late period of the disease. The malignant cases were treated with mercury and antimonial emetics, with capsicum and salt internally, and also as a gargle. Nitrate of silver was used as a local means. With the mildest case, emetics of ipecac. and gentle aperients were used. In the two cases of parotitis, there was metastisis to the testicles. Blisters to the parotids, and means to excite diaphoresis were successful.

In the year, one hundred and nineteen cases of fever were treated; of these, sixty-five were intermittent, forty-three remittent, and nine catarrhal. Forty-eight were under ten years of age, thirteen between ten and fifteen, fifteen between fifteen and twenty, and forty-three over twenty. Eight cases occurred in January, six in February, eight in March, seven in April, eight in May, eleven in June, seven in July, fourteen in August, twenty in September, twenty-one in October, five in November,

and four in December. Many of the intermittents were anomalous, the patient remaining cold and chilly throughout the hot stage. In others, the fever was not preceded by any chill or cold sensations whatever. The paroxysms were irregular, sometimes coming on twelve hours sooner than anticipated, and frequently as much later. Among the whole number there were no complications of any importance, with the exception of one case. This occurred in a young lady of fifteen years of age, of previous good health. She was attacked on the 5th of May with a light chill, followed by the successive stages of an intermittent. "About 11 o'clock A. M. of the 6th (the day of my first visit), she had another light chill. At 6 o'clock P. M., I found her in a drowsy condition, face but little flushed, eyes suffused. Answered questions indifferently; hearing obtuse. Had been sitting up an hour before; vomited occasionally, bowels had not been moved since the attack; tongue quite dry and red; skin dry and warm; great thirst; pulse laboring, and not very full. Gave fifteen grs. calomel, and followed it in three or four hours with sulph. magnes. Applied sinapisms to the stomach and extremities; to the latter were also applied warm water and brisk friction, and they were immediately enveloped in flannel. Cold water was kept constantly applied to the head; but she fell into a profound coma, and died about 7 o'clock the following morning.

The general treatment in intermittents, was by emetics, mercurials, cathartics, and tonics. Relapses bore about the proportion of one to every five. But frequent relapses in the same cases, were prevented by the use of cinchonia and capsicum about the period of relapse.

The remittents were generally mild, and easily controlled by medicine. The treatment was generally a mercurial cathartic at the commencement, and the further use abandoned unless there was evidence of continued hepatic derangement. After the action of the cathartic, opium and ipecac. were given to produce free diaphoresis. Quinine was administered in the remissions of many cases. Eight out of forty-three cases assumed a typhoid form.

The nine cases of catarrhal fever occurred in January and February. They were all children under ten years of age. The cases were mild, and characterized by the usual symptoms of the disease. The treatment consisted of mild emetics and cathartics.

The following is the brief report of Dr. Kersey, of Milton:—

Since the 1st of March, 1852, fifty-one cases of fever have been treated. Of these, four occurred in April, eight in May, five in June, nine in July, seven in August, nine in September, four in October, one in November, one in December, and three in January. Thirty-two were adults, and nineteen were children; twenty-nine were males, and twenty-two females; thirty-five were intermittent, and sixteen remittents. Three cases were complicated with convulsions; these were all males under five years old; two of them were suffering from intermittent, and one from remittent fever; and each one of these patients had intermittent fever complicated with convulsions the preceding year. A large proportion of the cases of intermittent fever had suffered similarly during the preceding year; and several of them evinced a strong tendency to recur at short intervals; so that an attack of intermittent, in previously healthy persons, has very rarely occurred. Three cases of well-marked periodical hemicrania are embraced in the above number, from a supposed analogy in the nature, origin, and proper treatment of the two affections. The sixteen cases classed as remittents, include a few in which remissions were not remarkable; these were characterized by typhoid symptoms, such as low delirium, great prostration, sordes about the mouth, frequent and small pulse, sudamina, a tendency to sores on parts subjected to protracted pressure, etc. There was, however, no tendency to diarrhœa in any one of these cases, and no petechial efflorescence was observed. So that these cases were typhoid only in the *radical*, and not in the *technical* sense of the word; and from a few *postmortems* during the past summer, it seems probable that the typhoid tendency is due to inflammatory action in some one of the viscera.

In the treatment of fever, the usual remedies have been employed. Venesection has been used three times, cupping three times; and in the cases of children with some local disturbance, one patient was blistered. Purgatives were used very generally, but mostly mild articles, and only to the extent of obviating costiveness. Diaphoretics and anodynes were used frequently, and quinine in almost every case. Eight cases of simple intermittent were treated with muriate of soda, in drachm doses, repeated three times. This succeeded perfectly in five cases, and had no sensible effect in three; the latter cases yielded readily to quinine. Where typhoid symptoms have occurred, it has been understood to indicate local inflammation; and where this could be

detected, cold applications, cups, blisters, or some other topical remedy was applied freely over the part, whether this was the stomach, the bowels, liver, spleen, lungs, or brain. No case of fever has proved fatal during the period reported.

Fifteen cases of acute diarrhœa, mostly complicated with fever (many of these with urgent vomiting, and three with convulsions), have been treated. They nearly all occurred in July and August, and were mostly children, among whom this affection was less prevalent last summer than usual. Calomel, Dover's powder, creta preparata, spirits of turpentine, astringents, cold applications to the head and abdomen, were very commonly used. Of these patients, one died, a female orphan child, of five months old of thoroughly scrofulous diathesis, and whose mother died of scrofula.

Six cases of acute sporadic dysentery were treated,—principally with cream of tartar, anodynes, charcoal, and cold applications to the abdomen, and cold mucilaginous injections. One patient died. This was a child two years old, that had suffered about a week from acute dysentery, with repeated convulsions, constant fever, and the incessant potations of a German botanic quack; and finally, after an unusual variety of remedies, died in a typhoid state in my charge.

Within the same period, twelve cases of *pneumonia* were treated. Three occurred in April, one in October, four in November, two in December, and two in January. Of these, five were under ten years, six between ten and twenty, and one, a delicate scrofulous female, over forty. Five were males and seven females. No one of these patients had venesection; only two were cupped, and three blistered, and only three had tartarized antimony. Calomel, niter, Dover's powder, James's powder, cold applications, chloroform liniment, etc., were most generally used. I regard blood-letting and antimony as the most powerful means of arresting pneumonia. The tender age of many, the constitutional delicacy of some, and the obviously low grade of action of others, must account for the apparent neglect of these important means. Of these patients, eleven recovered and one died.

Sporadic *erysipelas* has appeared in a few cases, and has been successfully treated with mild purgatives, and local applications of nitrate of silver, or tincture iodine, and the early and liberal internal use of the muriated tincture of iron.

A few cases of *rheumatism* have been treated, principally with lemon juice, and promptly relieved.

Inflammatory sore throat has recently had an almost epidemic prevalence, probably owing to the wet weather. Purgatives, sedatives, iodine externally, and nitrate of silver to the throat, with gargles of solution of nitrate of lead, and decoction of Hydrastis Canadensis, have, so far, succeeded in curing this class of affections.

Hooping-cough has prevailed epidemically in this town and county for the past year, and has generally been severe and protracted. A number of remedies were used; among them the recently lauded nitric acid; but, like most others, it was found, in a majority of cases, to do but little good. It sometimes seemed to moderate, and perhaps abridge the disease. *Scarlatina, measles*, and other contagious, endemic, and epidemic diseases, have not prevailed here during the past year.

Dr. Boyd, of Jacksonsburg, reports from the twenty-second of May to the end of the year 1852. This period, he observes, was one of remarkable health, being almost exempt from the usual diseases of the vicinity—remittent and intermittent fever. He reports one case erysipelas, one of hooping-cough, and two of scarlatina. The treatment not given.

But fifty-six cases are reported; thirty-six of which were adults, and twenty children; thirty-five were males and twenty-one females. Of these, twelve had intermittent fever, seven males and five females. Nothing remarkable in the cases, except, perhaps, a stronger tendency to renewed attacks after a cure. Two children had convulsions during the fever. Gave mercury in five cases, quinine in all, and arsenious acid in one. And, to prevent a return, the same dose that effected a cure, once a week for four consecutive weeks. No deaths.

Thirteen cases of remittent fever were treated,—nine males and four females. In all the cases that occurred after the 1st of September, there was a marked tendency to assume the typhoid or adynamic type. In four cases general depletion was used, six had mercury, and all quinine and other tonics. No deaths. Five cases of dysentery, all children, four males and one female. Of these, three took quinine, four mercury, two astringents; all took opium and turpentine. The doctor observes that, according to his experience, "Spirits of turpentine and opium are *the* remedies in dysentery." No deaths. Eight cases of diarrhœa, five males and three females. Six of these took mercury, six acetate of lead, all opium; five recovered and one died, a male child eighteen

months old, who had had diarrhœa six weeks and had nothing but domestic remedies; had symptoms of convulsions when first seen, and died of convulsions on the fifth day of treatment. Three cases of cholera morbus; all took camphor, opium, and acetate of lead. All recovered.

One case of cholera. It occurred in July, an old gentleman aged sixty-three, of intemperate habits. Saw him four hours after attack; had violent spasms and rice-water evacuations, and soon fell into a collapse state. Gave calomel, opium, capsicum, and camphor freely, and used external heat, stimulants, and friction to the surface. But to no purpose. He died in eight hours.

One case of acute rheumatism in November; the patient, a male, sixteen years old, was not treated until the sixth day after the attack. Depletion, mercury, opium, niter, and bitartrate of potash in the commencement; afterwards tonics and opiates, to no effect. Died on the sixth day of treatment.

A fatal case occurred in a patient aged thirty-four; had been treated three weeks by botanic quacks. When seen first, by the doctor, presented strong symptoms of typhoid fever. Was treated by turpentine, quinine, and opium internally, and blisters; under which he seemed to improve for a few days. But finally died in two weeks. Postmortem examination revealed gangrenum of the duodenum and gall bladder; the latter perforated in two or three places, so that bile had escaped into the peritoneum.

Dr. S. H. Kersey, of Lewisville, Henry county. Lewisville is situated on the east bank of Flat Rock, at the point where the national road crosses the stream. That town, together with the surrounding country, has been remarkably healthy for the last few years. Five to ten years ago that section was annually scourged with intermittent and remittent bilious fever.

From April to the end of the year, the following diseases were treated: One case of chronic gastro-enteritis, complicated with general neuralgia, in a young man of nervous temperament: Fatal. Four cases of typhoid fever, three of which were treated with rhubarb, blue pill, camphor, valerian, quinine, and anodynes, with cold sponging. One fatal, on the eighteenth day, from epistaxis; two recovered. The fourth was treated with anodynes, turpentine, and quinine, and sponging freely with cold water: Recovered. Seventeen cases of intermittent fever were cured with quinine, except some obstinate and protracted cases,

which yielded to precipitated carbonate of iron, cubebs, valerian, ipecac. and, in some cases, capsicum, variously combined to suit the case. Five cases of remittent fever were treated with blue pill, cathartics, anodynes, and quinine. Three cases of gastric fever were treated by cold water internally, and applied externally to epigastrium, mercurials in minute portions, anodynes, and quinine: Recovered. Four cases of pneumonia, three of which yielded readily to cupping, antimony, mercurials, and expectorants: venesection and blistering were employed in one case. The fourth, typhoid, had progressed eight days before treatment: died on the fifteenth day with gangrene of the lungs. One case of acute carditis; treated by free and repeated venesection, cupping, digitalis, antimony, mercurials, and anodynes: Recovered. Six cases of acute dysentery treated successfully with bitart. potash in purgative doses, and *anodynes sufficient to control all pain.* Two cases of chronic dysentery, with ulceration of the bowels; both delicate children: Treated successfully by minute doses of Turkey rhubarb, anodynes, turpentine, and fomentations. Two cases of meningitis in children, one traumatic, treated by venesection, cathartics, mercurials, cold applications to the head, and blisters to the extremities: Recovered. One case of acute peritonitis. Free and repeated venesection, a full anodyne, cathartics, including croton-oil and calomel; purgatives, enemas, fomentations, etc.: Recovered. Seven cases of acute tonsillitis: Treatment, purgatives of bitartrate of potash, Dover's powder, James's powder, gargles of salt water, and anodyne poultices. In the cases attended with suppuration, the Hydrastis Canadensis was used with good effect: Recovered. One severe case of asthma (habitual) promptly relieved with iodide of potassium, in ten-grain doses every two hours. Two cases of chronic psoriasis, in adult females of scrofulous habit. One treated successfully with iodide of potassium and free purging with bitartrate of potass. The other is improving under Fowler's Solution, after having resisted the above treatment.

Dr. Pennington, of Milton, treated, from the 1st of May, 1852, to the 1st of January, 1853, some forty cases of fever, about equally divided between intermittent and remittent fevers. They were treated according to the practice of *regular* physicians. After the due use of either emetics or cathartics, quinine was mainly relied on to arrest both intermittent and remittent fever. He thought it unnecessary to have recourse to other remedies, as

the cases were uniformly mild in character, and readily yielded to ordinary treatment. He treated four cases of pneumonia, nine of diarrhœa, three of dysentery, ten of pertussis, two of cholera morbus, and four of tonsillitis. The treatment not given.

But two deaths occurred in his practice during the year. One, a child about two years old, died of convulsions, complicated with intermittent fever; was not treated in time. The other, a child of two months, of pneumonia.

In regard to my own practice, I may state that I was absent in the early part of the season, and no record of any case was kept prior to the 28th June. Subsequent to that time, but four cases of intermittent fever occurred. One in June, one in July, and two in September. Of these, one—a child—was a male, and three were females, two of whom were adults. The treatment was generally a mercurial cathartic, followed by quinine. In cases accompanied, as is usual, with distressing pain or aching in the head, back, and extremities, during the fever, a full portion of morphine or some form of opium was given, which uniformly rendered the patient comfortable and brought on perspiration; after which quinine—ten grains in four portions, at intervals of three hours—arrested the disease. I preferred having it taken as long before the time of the expected paroxysm as possible, and found it more certain to prevent a recurrence. To prevent a return of the disease, which is liable to take place—especially if the person continue in the district where it is generated—in from one to two weeks, directed the patient to anticipate that period by ten grains of quinine.

But four cases of remittent fever occurred during the above period, three in July, and one in September. Two males and two females. One under ten, two between ten and fifteen, and one over thirty. The cases were of a mild character. Calomel was given as a cathartic, and continued in small portions, to stimulate the secretions, in combination with pulv. antimonialis, succeeded by quinine. I consider quinine as almost indispensable to the successful treatment of remittent fever. I would prefer to dispense with it in the treatment of intermittent in preference to remittent fever; which is, in fact, as it occurs here, but a higher grade of the same disease.

Thirteen cases of diarrhœa were treated. Nine males, three of whom were adults and six were children; and four females, one adult and three children. Ten occurred in July, and three

in August. All had calomel and opium, in some form, to restrain the action and restore the healthy secretions; one had, in addition, acetate of lead; four, Creta ppt.; two took quinine, and one had an emetic.

Nine cases of acute dysentery occurred; five of which were in males, three adults and two children; and four were females, all adults. Four occurred in July, and five in August. Five had bitartrate of potash as a cathartic, seven had calomel, eight opium, one morphine, two had astringents, one turpentine, and one quinine. One recovered in two days, two in five days, two in six, one in seven, and one in twenty-three days,—the last, an old colored female, who had the disease a week previous to receiving treatment. It presented a typhoid character; a dry, dark-coated tongue, with dark sordes about the teeth. She was treated with turpentine, opium, and quinine. Two deaths. One a delicate boy, eight years old, who had the disease several days before application for medical aid; was slowly recovering, but unfortunately was allowed dried beef to chew, which he swallowed unchewed, and was the next day taken with violent convulsions, followed by paralysis of one side: death occurred after the disease had continued five weeks. The beef was voided, undigested, a week after it had been eaten. The second was a child, seven months old; had been subject to the colic, was attacked with convulsions, and died on the eighth day from the commencement of treatment: Treatment,—Dover's powder; minute portions of calomel, opium, and acetate of lead; cold applications to the head; warm to abdomen, and finally cold, which seemed to afford some relief; stimulants, tonics, and astringents of various kinds, were used; and also nitrate of silver.

Two cases of cholera morbus. One in July and one in August. Treated by calomel and opium, sinapisms to the epigastrium, and ice to allay thirst.

One case of fever of adynamic character occurred in September, in a colored man, aged thirty-four. He had been unwell for several days when he applied. Complained of feeling chilly; of a severe pain in the back of the head; pulse but little accelerated, small, and compressible; but little heat of the surface; tongue coated, except a small portion on one side, which was clean, smooth, and of natural color; bowels, though not active, were easily excited by medicine; some uneasiness in both hypochondria, scarcely amounting to pain, and some fullness in the

left, near the cartilages of the ribs. After a mercurial cathartic, which acted freely and afforded some relief to the head, the disease assumed a more remittent form; exacerbations of fever recurring every evening and declining during the night; occasionally, with copious perspiration. In the progress of the disease there was delirium, sordes of the mouth and teeth, soreness of the fauces, sudamina about the neck and breast, subsultus, but no appearance of petechia. Having some nausea, an emetic of ipecac. and ant. tart. was given, which resulted in the ejection of a large quantity of bile, which afforded some relief; quinine was then given, but without the anticipated benefit. Calomel and opium were given in alterative portions, until slight ptyalism was induced; a blister to the left hypochondrium, and afterwards quinine and terebinthinate mucilages; infusion of valerian, camphor, and such other auxiliaries internally as the case seemed to demand; and cold sponging externally. During the disease he had some cough; yet auscultation revealed nothing unnatural. He died in the sixth week of his sickness. An examination was had, ten hours post-mortem. Lungs, liver, and spleen were considerably tuberculated; liver somewhat congested; spleen greatly enlarged but firm, weight estimated at two pounds, and adherent to the peritoneum. The omentum, contracted and rolled up, presented an indurated appearance. The glands of Peyer normal.

There has been no year since my residence in this place, now fourteen years, in which there was not a greater amount of sickness than there was last year. In 1839, the first year after I located here, there prevailed, to a considerable extent, a typhoid grade of fever. It had existed the previous autumn and winter, particularly in the adjoining county of Henry, attended with a considerable degree of mortality. The succeeding summer was very dry, so much so that, in some portions of the country, even in the flatlands where, in an uncultivated state, the water usually stood the whole year, the earth was so dry that its surface cracked open. At this time the fever was most prevalent. Persons would complain for several days previous to being taken down, of general discomfort, or *malaise;* and, on examination, the pulse would be found slightly accelerated. But a constant and uniform symptom, even at this early stage, was a coat on the tongue through which might be seen the red appearance beneath, or more commonly, a red, smooth streak

along the center; this coat would come off in a few days, and the tongue would present a general red, smooth, shining, or varnished appearance. The bowels were either very active, or easily acted upon by medicine; the skin, where the disease presented an open character, was generally very hot and dry; but it was very liable to assume a congestive form. Hæmorrhage from the bowels, in the progress of the disease, was very common; especially where cathartics were used with much freedom. This, however, when properly treated, was not considered an unfavorable symptom. Many physicians, at that time, depended, in the treatment of the disease, in a great measure, on alterative doses of calomel, with which they were obliged to combine opium or some other medicine, to prevent its cathartic effect. A few cases, however, were treated by mucilages alone, and bland diet, such as milk in small quantities, and with better effect than by medicine. This character of disease continued, though decreasing, for several years; till about '44 or '45 it had entirely disappeared, when the genuine intermittent and remittent bilious fever took its place, and continued until '50 or '51; since which time it has been declining; and it is believed that there is now a tendency to return of a modified form of typhoid fever.

Richmond, Wayne County.—The following account of the the diseases of this place, for 1852, is taken from the note-book of Dr. Jno. T. Plummer, of Richmond:—

1st Mo. The prevailing disease of this month was bronchitis. Nothing unusual attended the affection; and it yielded as readily as common to the ordinary means of cure. Snow had lain on the ground for several weeks; but on the 31st there was a universal thaw.

2d Mo. On the 27th, the barometer fell very low; which was followed by rain, succeeded by strong winds and piercing cold. 29th; A few cases of measles occurred at the close of the month.

3d Mo. Forepart of the month cloudy, rainy, and cool. 14th, Spring-like. Intermittent fever, bronchitis, diarrhœa, and dysentery presented themselves, but to no great extent. Some cases of measles. Whitlows common. A few cases of carbuncles on the nucha.

4th Mo. Measles continue. Diarrhœa, dysentery, and some

cases of mumps appeared. The diarrhœal stools were frequent, watery, and generally colorless.

5th Mo. A few instances of measles this month; but, for the most part, there was little sickness.

6th. Mo. Some diarrhœa. Fires comfortable. During the first week some cases of scarlet fever occurred (eruptive). A few cases proved fatal under the care of a homœopathist, and others. 17th and 18th: Very hard, and on the 18th continuous, rain. On the 25th the first case of cholera spasmodica presented itself, in a boarding-house kept by an Irishman. There were twenty or thirty dirty lodgers, in addition to the family, all crowded together, and when sick obtaining but little attention. The case alluded to proved fatal. On the 28th the second case occurred in the same room, and likewise proved fatal. A day or two after, two young children of the family died. Several other boarders who were attacked recovered. After the death of the children, the boarders were dispersed; and no case subsequently appeared. During the existence of these cases, there were a few instances of dysentery and hooping-cough; and the weather was pleasant.

7th Mo. The 1st of the month was very warm, with a close, oppressive, damp atmosphere. Some cases of measles, hooping-cough, and diarrhœa. Unusual number of cases of menorrhagia and flooding. Cases of erysipelas. The sultry weather continued mostly through the month; the thermometer reporting 80°, 90°, and 93°. Cholera infantum. Several cases of Asiatic cholera (fatal) reported from the railroad-gradings near town. Cases of varicella. At the close of the month, diarrhœa very common; the stools being watery, green, brown, and often intolerably offensive. Some of the dysenteric cases which occurred about this time, were attended with (for my experience here for many years) unusually violent tormina.

8th Mo. Dysentery and diarrhœa continue. Mercury at 60° on the morning of the 2d. Some cases of typhoid fever. 3d, 78° at noon; the first week generally cool. One case of intestinal derangement presented the following rare combination: pulse 120, rather feeble; pain over all parts of the abdomen on slight pressure; diarrhœa of very variable stools, sometimes scanty, bloody, mucous, with tenesmus, but mostly thin and copious. First half of the month was very dry. On the 18th, intermittent and remittent fevers appeared. The 20th was very

rainy; and before the close of the month, mild cases of scarlet fever and chicken-pox occurred. On the 28th, there was a sudden change of temperature requiring additional or warmer clothing.

9th Mo. A fatal case of cholera spasmodica at the beginning of the month. Diarrhœa less common. Dr. Bunnel, sen., of Washington, in this county, died of consecutive fever of cholera spasmodica. 11th, Heavy rain. Oppressive, damp atmosphere. 13th: Another fatal case of spasmodic cholera. Little other sickness. First frost about the middle of the month. Some bilious diarrhœa and typhoid fever. On the 24th, an old colored woman died suddenly of spasmodic cholera. She attended to her domestic duties at eleven o'clock, A. M., and died at eight o'clock in the evening. A white man—her *quasi* husband and former master—was attacked in the same manner, and died in about two days. Weather pleasant.

10th Mo. First week marked for its oppressive atmosphere, followed by some heavy rains. Second week cool, with some frost. Third week brought a balmy atmosphere. In the fourth week, there were cases of erysipelas. The month, in general, was remarkable for its salubrity.

11th Mo. The first week was rainy, with little sickness. In the second week we had scarlet fever, with scanty eruption. The atmosphere was raw. Indeed, the whole month was rainy, cloudy, and dull. Catarrhal symptoms very common; but the affection generally mild. Scarcely any other sickness.

12th Mo. This was a somewhat rainy month, with a few days of freezing weather. Beside a case or two of chicken-pox, and a few mild cases of erysipelas, the principal diseases were pneumonia and pulmonary catarrh.

Dr. L. D. Personett wrote me, under date of 7th Mo., 19th, '52: "We have had several cases of cholera here during the last nine days: three Germans, four Irishmen, and two citizens." Four of the patients died. The doctor's residence is at Washington, in this county, twelve miles from Richmond.

Indianapolis.—The following account was furnished the Committee by Dr. J. S. Bobbs, of this place:—

During the winter months of 1853, no epidemic prevailed in this city. The type of disease was inflammatory. Pneumonia, rheumatism, puerperal fever, abscess, scarlatina,

measles, carbuncle, were all met with, but, so far as we remarked, without any one predominating. Abrupt and extreme changes in the weather seemed adequate to account for their appearance in most instances. The spring months continued to develop these forms of disease, especially March and part of April; and measles and scarlet fever were perhaps more prevalent than during the winter, but can hardly be said to have been epidemic. The summer months commenced with a tendency to bowel complaints, such as diarrhœa, cholera infantum, dysentery, cholera morbus. But no general prevalence was manifested; and there were less intermittent and biliary disorders than are usually met with during the hot months. The commonly progressive increase in this latter form of disease, from the opening to the close of summer, was absent; and the whole quarter, particularly the last half of it, was remarkably healthful. About the 1st of September, typhoid fever began to be observed, and continued to increase for about three months; since which it has abated. Remittent and intermittent fevers were less frequent than usual at this season of the year, and the typhoid form of fever more so. While it can scarcely be said to have been epidemic, it was more frequently met with than common, and was the type of the fever existing, instead of the intermittents and remittents peculiar to the fall months. It presented the usual characteristics of the disease. Protracted chilliness was superseded by hot skin, flushed cheeks, dry tongue, mostly furred, muscular soreness, the latter often an earlier symptom. Headache and pain in the small of the back were nearly always present, and irritable stomach quite common. Gastric distress, with frequent and persistent vomiting, was sometimes met with. Confusion of intellect, sometimes an early symptom, was more commonly manifested, or became more marked in the progress of the disease, and was rarely absent in all stages of it.

Muscular tremor was generally present during the latter period of the disease, but sometimes was observable soon after the development of the fever. Violent pain in the head continuing several days, followed by intolerant stomach, was present in one case; and a peculiar oscillating motion of the globes of the eyes, similar to that observed in congenital cataract, throughout the progress of another. The urine was generally scanty, high-colored, and deposited copiously of a lateritious-colored sediment.

The tendency for the tongue to become dry was early manifested. The edges were generally smooth, the center coated, but sometimes glazed. The lips also became shrunken, scaly, and harsh; and where the teeth were not in contact with these, they became covered with a dark-colored adhesive matter. This tendency to dry progressively extended throughout the mouth and fauces, and was a most distressing symptom, often depriving the patient of the free use of the muscles of the mouth and throat. Patches of this adhesive or parched matter would sometimes depend from the fauces, producing nausea or provoking vomiting; and were always annoying to the patient.

The heat of the skin, in some instances, had the peculiar pungency observed in typhus; but in the majority this was not present. Cold extremities, the body being warm, were common; and in one case, that in which early and violent headache was present, the heat of the surface rarely went above the natural standard, and was mostly below it, especially that of the hands and feet. Abrupt arresting of her menses from cold initiated this case, and probably modified its character throughout. The heat of the surface always became more decided the after-part of the day and the fore-part of the night. The cheeks were generally flushed, but sometimes only one of them, and then with a sharply defined outline. The skin was dry, or, rather, *felt dried*, although partial perspirations occasionally appeared.

As the disease abated the skin became more pliant and perspirable, but decided sweating was not common in any stage. One case commenced with great muscular soreness and general prostration, followed by a moderate degree of fever, which continued for a week; when the temperature of the whole surface sank below the natural standard, distressing gastric oppression and vomiting supervened, the pulse being but little disturbed. This state continued with but little variation for about ten days, and ended in convalescence. Upon the whole, the skin, although rarely presenting a natural feel, was neither remarkable for the pungency of its heat, nor its uniformity above the natural standard; and we think those suffered least, or were less conscious of it, who had the highest temperature of the surface.

An eruption very generally made its appearance in the progress of the disease, but we are not well convinced that it observed any particular stage, confined itself to any particular part of the body, or was uniform in its character. Sometimes the first indi-

cation of it was a red speck in the skin, either simply hyperemic or papular; and at others the eruption became pustular early, if it was not so from the first. We noticed, in some of these instances, a central depression, with or without a cuticular hair planted in it; and it might have passed for varioloid if this had been prevailing.

This eruption would probably have been more uniformly observed on the abdomen than elsewhere, if this part had not been so commonly blistered as to have obscured its development. But suppurating pustules were more uniformly found during convalescence. They always invaded blistered surfaces, but were not confined to these. Subcutaneous suppuration alone, or with a central core,—a small slough,—was their general nature; rarely very troublesome from their size, but frequently so from their number. Suppuration over the parotid gland occurred in one case. In another, which we saw the day before death after about five weeks illness, a sphacelated spot showed itself in the left cheek, and during the next week extended from below the lower jaw to the orbit, and from the ear, the edge of the nose, and the center of the upper lip. It included the whole thickness of the tissues in most of its outline, also the tonsil and palate of the same side. The skin around the eye was puffy and red; but a view of the eye could not be obtained. Except around the eye, no redness or other mark indicated the passing of the sound tissues into the adjacent mortified parts. The surrounding vital parts were hard and somewhat swollen; and the limits between these and those destroyed were easily traced, where not obscured by the dressings. Some swelling of the parotid gland of that side, was said to have been observed before mortification set in. The opposite side of the face presented nothing unusual, except the emaciation, which, contrasted with the swollen right side, gave the features the appearance of a tilt. The gums and teeth of the right side were sound and healthy, as were also the latter on the left one. No mercurials had been given during the treatment, and no evidences of salivation were now observable. But little treatment was adopted during the first two weeks, and what we should esteem very inefficient tonic treatment during the remainder of her illness. The eyes were generally suffused, and more or less bloodshot; and where pain in the head existed, light was annoying.

Where vomiting was troublesome, thin watery bile and mucus were generally ejected. In one case, where great distress of the stomach and vomiting persisted many days, with cool skin, moderately hurried circulation, and excessive thirst, large quantities of a dark, greenish fluid were ejected, similar to that patients sometimes gulp up, without an effort, immediately preceding death from acute diseases. The case ultimately did well.

The discharges from the bowels, in the early stages of the disease, were usually light colored, serous, and flocculent, with some feculent matter. They usually became dark colored and more consistent as the case progressed towards convalescence, or became hæmorrhagic in unfavorable cases. This seemed to be pure blood in some cases, or a pultaceous mixture of blood with morbid secretions in others. In one case, about the time we supposed our services were about to cease, from the favorable progress, copious and repeated serous and flocculent discharges from the bowels ensued, which considerably debilitated the patient, but did not seem to retard convalescence. The patient had a vigorous constitution. The pulse was generally frequent, small, and little resisting. Thirst was uniformly present; but the disposition to drink often seemed to depend upon the vain attempts of the patient to restore some moisture to the mouth and fauces.

The features were always expressive of suffering and discomfort; and vivid sensibility of the eyes and ears were often present.

A soporose tendency was sometimes manifested in those who had open fever; but refreshing sleep was seldom obtained. Where reaction was less manifested, wakefulness was present, and sleep when obtained was fitful and disturbed.

Tenderness over the epigastrium was a common occurrence, and over other regions of the abdomen quite usual, but not always the same parts.

The disease had a variable period of duration, between the third and the sixth week. Its favorable progress was indicated by soft skin, moisture of the mouth, and less thirst; the mind beginning to clear up; sleep more quiet; urine more copious, and the evacuations dark and adhesive, or consistent; the circulation less hurried, and the pulse having more volume and force. The features would relax, and the exalted sensibility of the senses abate.

An unfavorable progress was manifested by a more declared appearance of the symptoms already detailed, and especially by

hæmorrhage from the bowels, continued delirium or stupor, frequent, small pulse, ash-colored or black tongue, mouth, and fauces; difficulty of swallowing, involuntary evacuations, etc.

No postmortem appearances came under our observation.

The treatment was generally commenced with a mercurial cathartic, as calomel, gr. xij., pulv. Dov. vj., followed by some moderate cathartic in six or eight hours, where this failed to act itself. We generally gave the patient the choice of means to start the mercurial, where it seemed tardy. In several instances, where the head seemed unusually early involved, we commenced with an emetic of ipecac. gr. xvj., emet. tart. gr. iij., and followed this by a mercurial, as above. In one case we bled, where the pain of the head was violent and was not abated by the favorable action of the above medicines. The pain was relieved, but little reaction was ever present; vomiting was troublesome, but dryness of the mouth and fauces were the most complained of subsequently. The case ended favorably and speedily. Mercurials in small portions, first combined with Dover's powder and ipecac. where the stomach was not irritable, were given at intervals varying from three to six hours, for five to seven days. The ipecac. was generally omitted at this period, and camphor added. This course, variously modified, was continued until the heat of the skin, improved secretion, or other indications of the abatement of the fever became manifested, when the mercurial was omitted, and quinine, camphor, and Dover's powder substituted. When the fever did not seem to abate under this treatment of the first stage, and the pulse became more frequent and the mouth more dry, we relied more upon the quinine, sometimes given in the above combination, at other times in solution with spt. camphor and spt. niter.

Where the fever never developed itself well, we gave quinine early, when the stomach was tolerant of it. But this organ was uniformly more irritable where there was but little reaction than in other cases; and morphia, super. carb. sodæ, solid opium, or creosote, either separately or combined, and with or without quinine, were administered here. In the most troublesome case of irritable stomach which came under our care, where there was very little reaction, quinine, creosote, and solid opium, with occasionally a little blue mass, were continued at periods of two hours, gradually extended to six, for a period of

about one week. Morphia was also applied frequently to the raw surface of the abdomen during the same time. As an evidence of the perverted sensibility of the parts, we may mention that the patient, during this time, had rubbed every particle of cuticle from the blistered surface of the abdomen, which was intensely red and angry-looking. Yet she would bear this surface to be rudely handled in dressing it, without the slightest complaint, though two small blisters afterwards placed on the extremities gave her much annoyance when she ceased to complain of distress of the stomach. All drinks were denied her but table-spoonful portions of toast-water, until the vomiting ceased, after which she was permitted to take all. She made a good recovery in about four weeks.

Blistering over the epigastrium, or more properly the abdomen, was very generally resorted to. Where the fever was well-developed, these were applied so soon as the reaction began to be of a more subdued character; and up to this time, a hop poultice was very commonly employed with advantage in lessening tenderness over the epigastrium. Where the reaction was imperfect, blistering was resorted to earlier in the disease. A second application of a blister was sometimes tried, where the first had dried up before convalescence was fairly established. Blisters to the extremities were sometimes found beneficial, where these were cold. More frequently, mustard plasters were substituted, their location being often changed.

The application of morphia to the blistered surfaces was frequently resorted to, where gastric trouble or other discomfort, or wakefulness, was present. Its soothing influence was always grateful, and often essential to the comfort of the patient.

Where no gastric trouble existed, the patient was allowed his choice of non-stimulating drinks; and where this was present, toast-water, gum-water, elm-bark water, or rice-water was allowed in very small quantities, and at not very short intervals. During convalescence, ale and porter were given, and generally before this stage, where exhaustion began to be apprehended. Whey was often taken in all stages of the disease; and small pieces of ice were found refreshing to the patient. Sometimes brandy or wine was given, in the last or declining stage; but ale and porter were generally preferred.

The results of the treatment were generally satisfactory. One

of my patients died from disease of the kidneys of long standing, after he had been sitting up and seemed perfectly restored. The others recovered, but sometimes after protracted illness. Some cases died which I visited in consultation; and one, which fell into my hands about three weeks after the invasion, from the necessary absence of her physician. All the characteristics of convalescence had been progressing several days, when delirium, muscular tremor, hurried circulation, suddenly supervened, and death followed in twenty-four hours.

No obvious causes of typhoid fever were observable. The last year has been an unusually dry one. The usual amount of rain, accompanied with lightning, that ushers in the hot months and continues the first half of the summer, was wanting. The latter half of the summer, and all the fall months, were unusually dry. Crops suffered from the drought, but not very much; vegetation was less luxuriant than usual, and the streams carried a less volume of water. Remittents and intermittents generally begin to prevail when early vegetation begins to die; but vegetation rather dried up than decayed during the last summer and fall. This accounts for a lack of the usual amount of remittents and intermittents; but whether it generated typhoid fever instead, is not demonstrable.

Milton, Wayne County.—The following account of this locality was furnished by Dr. V. Kersey, and is placed here as furnished to the Committee.

About the middle of February, 1853, *measles* made its appearance, and spread, apparently under epidemic influence, for several months, and until material for its propagation was very thoroughly exhausted in this village and its immediate vicinity. The disease was not remarkably severe, many cases receiving no medical attention, and others but little; yet perhaps in a majority some medicine was used, and seemed necessary to the well-being of the sick. I saw no death from uncomplicated measles, and only one where it was supposed to have any agency in the fatal result.

During the whole of the past year, and the latter part of the preceding, *furuncle*, *carbuncle*, and *paronychia*, have been unusually prevalent under my notice, indicating a clearly epidemic tendency to suppurative disease in this locality. Incisions, and stimulants—such as tinct. of iodine, nitrate of silver, and emol-

lient poultices,—have been used locally, and in some cases tonics, and especially muriated tinct. of iron internally.

Epidemic dysentery made its appearance in Milton about the middle of July, and disappeared early in November. The number of cases occurring in the village and its vicinity during this period (of about four months), is not known; but it was undoubtedly over two hundred, and may have reached nearly three hundred cases. The deaths were carefully recorded; and the number is twenty-six. Of these, four occurred in July, twelve in August, seven in September, and three in October. Eleven were adults, and fifteen were children. Twelve were males, and fourteen were females. The severe cases of this disease were generally accompanied with great constitutional disturbance, and often ushered in by a distinct chill, from which the reaction in some cases was feeble and imperfect; in others it was vigorous, and the fever high. Early and distressing nausea, retching, and vomiting, loathing of food, furred tongue, thirst, great tenderness of the abdomen, specially within the iliac fossæ, purging of mucus and blood, great frequency of pulse, often amounting to 125 in the adult, with a strong tendency to collapse and death towards the close of the first or, at most, the second week of disease, were among the prominent features of this epidemic. Two patients died on the fourth day of disease. One remarkably healthy boy of four years old, died on the fifth day, without medical treatment. Others died during the first week, some early and some late in the second week; and in a few instances the acute stage of the disease was survived, and followed by chronic dysentery, diarrhœa, emaciation, ulceration, and death. But in these cases the patients were infirm, either from old age or some constitutional disorder.

This epidemic was, strictly speaking, an ilio-colitis; and in many cases the rectum was not seriously involved in the inflammatory action. The tendency to *gangrene* was unusually strong; and in some cases this condition was clearly manifest some days before death. Several patients had their sufferings greatly aggravated by intense muscular pains, without swelling or soreness: the gastrocnemii were most frequently affected. Others, after the acute stage, were attacked with rheumatic inflammation of the joints, especially those of the extremities, and, in one instance, with lumbago. In a number of cases this disease was accompanied by a cutaneous eruption of the face,

chest, abdomen, and extremities. It was often vesicular, and the vesicles contained a limpid or yellowish fluid, which soon became purulent; sometimes superficial ulcerations destroyed the cuticle for an inch or more in diameter; sometimes it was deeper, destroying the true skin to a limited extent, and excavating the areolar tissue around. This cutaneous affection is not known to have occurred in any other than fatal cases.

Mrs. S——, aged fifty-two, of fair constitution, and rather corpulent, died on the fourteenth day of illness. The body was examined nine hours *post-mortem*. Emaciation had made no sensible progress: the surface of the body was livid in many places. The peritoneal surface of the large intestines was dark throughout, and about the caput coli and ascending arch verging to black; here, the finger was readily passed through the coats of the bowel, and the mucous membrane was quite wanting; both here and in the sigmoid flexure, mostly wanting in the other portions of the colon, and extensively diseased in the rectum, though this had suffered less than any other portion of the large intestines. The mucous coat of the vermiform appendix was found highly injected and smeared with mucus and blood. Several feet of the ilium were found marked with disease. In many places the mucous membrane was entirely destroyed, in others highly injected and covered with bloody mucus, the peritoneal surface had lost its natural brightness, and near the colon a cloudiness was visible. The signs of disease were abundant in the lower portion of the ilium, but diminished on ascending. The mesenteric vessels were distended with dark blood. The stomach appeared to be healthy. The liver was large, and full of dark blood. The gall-bladder was distended with viscid bile. The spleen was large, and somewhat softened.

Mr. A., aged thirty years, of good constitution, died on the fourteenth day of illness. Body examined eight hours after death. Emaciation considerable. The colon diseased throughout; the mucous membrane extensively abraded, specially toward the two extremes. The sigmoid flexure was greatly contracted, and all the coats of a dark color. The rectum was diseased, but less so than the colon. The mucous surface of the lower part of the ilium was abraded, injected, and smeared with mucus and blood. The mesenteric vessels were not remarkably full. The stomach was without signs of disease, pale, and contracted. The

liver was pale, and appeared to be healthy. The gall-bladder was full of dark bile.

Mr. L., aged sixty-eight years, of intemperate habits, died on the forty-second day of disease. Examination, ten hours after death. Body greatly emaciated. The organs were all found healthy except the large intestines, and a small portion of the ilium; the latter was injected. The two extremes of the colon dark-colored, contracted, greatly thickened, and extremely rough with ulcerations, which extended throughout the colon and rectum. The peritoneal coat of the bowel was not perforated.

I had exclusive charge of only sixty-two cases of this disease; and three of these died. Two were nearly seventy years of age, outlived the acute stage of the disease, and possibly might have recovered, had they been younger. The other was a vigorous man of good constitution, in the prime of life, and died on the fourteenth day of disease, without complication. Besides these, I saw many other cases in consultation, and some of them very frequently; so that in some other fatal cases I was equally responsible with the physician first called.

Sporadic dysentery, and some previous epidemics, have, under my observation, yielded readily and with great uniformity, to a simple mode of treatment heretofore indicated. But in the epidemic under consideration it was far otherwise. This was early discovered; and it will not be doubted that we applied a number of the remedies proposed for the cure of dysentery with diligence, and what medical skill our village affords. Of the many remedies employed, I shall notice only such as seemed to be useful in this epidemic.

Where the reaction was vigorous, *venesection*, even repeated, and *cupping* within the iliac fossæ, appeared to be useful. In an opposite condition, where the pulse was extremely feeble, and the surface cold and livid, *strychnine* was used with the most decided effect. The following formula was used:—

℞ Strychnine, gr. j.
Sulph. morphine, gr. ij.
Subnit. of bismuth, ℈ij.
Mucilage, q. s. Mix and divide into 16 pills.

One to be taken every two or four hours, until reaction is induced, or till the effects of the drug are otherwise manifested. This article was also administered in solution, according to a

formula recently used in cholera, at the Commercial Hospital, Cincinnati.

Mercury administered with a view to its constitutional effects had, probably, as much power over the disease as any agent employed. Calomel or blue mass was usually administered, in small portions, at intervals of about three hours, and in combination with opium and ipecac. or some other medicine which was supposed to be indicated. I saw only one fatal case where the mercurial impression was made; and in this case, although its effects were slight and transitory, the acute form of the disease was arrested, and the patient lived six weeks, notwithstanding he was nearly seventy years old, and of intemperate habits. In conjunction with this mercurial course, *daily purgation* was indispensable both to the comfort of the patient, and the ultimate success of the treatment. *Castor-oil* alone, or with oil of *turpentine* and a few drops of laudanum, and *bitartrate* of *potash*, were extensively used; and the choice between the articles was generally indicated by the peculiarities of the case. The discreet use of *opium* filled an important indication in this epidemic; but used indiscriminately, it failed most signally to sustain the reputation it has sometimes received as a curative agent in dysentery; and I was sometimes astonished at its wonderfully trifling influence, when employed without proper indications.

Although blood-letting seemed to do good, by moderating inflammatory action, and preparing the system to receive impressions from other remedies; yet patients bled, even freely, have subsequently required about the same treatment as others where this agent was not employed. Slight mercurialization seemed directly useful in altering the character and subduing the violence of the symptoms; yet, under the influence of this agent, it was often observed that a trifling neglect of purgatives was followed by increased fever, pain, and dysenteric purging, only to be relieved by a thorough evacuation of the bowels. A reasonably comfortable night could usually be procured by adopting this measure in the evening, and following it by a full portion of Dovers' powder, or a grain or two of opium; whereas an attempt to quiet the bowels and procure comfort without such preparation, utterly failed, although four or five grains of opium were used at a dose. *So that well-selected and well-timed purgatives were clearly indispensable to the successful treatment of this epidemic.*

Several infants, violently attacked with this epidemic, were cupped over the abdomen and loins; were put in a warm bath, or cold applications made over the abdomen, according as the character of the reaction indicated; and had from one-sixth to one-fourth of a grain each of calomel and ipecac. every hour for twenty-four or forty-eight hours, with the most decided relief.

The liberal use of rice-water was encouraged in the acute stage of this disease; and on the approach of convalescence it was supplanted by rice-milk. Stronger diets were prohibited.

I am not aware of any thing in the habits of our citizens, the condition of the village, or the surrounding country, that would favor the prevalence of disease one year above another. It is possible that the meteorological condition of the past year may have been unfavorable to health. To judge intelligently of this, an accurate register for a long series of years would be requisite. In the absence of this, I shall present as briefly as I can, the leading features of the past year; with the hope that facts of this kind may be accumulated and preserved by medical observers.

The winter of 1852–3, after the great rains of December, was rather dry, although remarkably cloudy. The temperature was variable, remaining below the freezing-point only a few days at a time. The mean temp. for Jan. was 31.10 deg. For Feb., 29.88 deg.

March was remarkably cloudy, without an unusual amount of either rain or snow. It had, almost throughout, its characteristic winds, unsteady, and blowing from all quarters. The temperature was variable. The extremes of the daily means being 21.50 deg. and 62.75 deg. The monthly mean was 39.23 deg. The mean height of the barometer for March, was 28.980 in. The extremes of the daily means were 28.639 in. and 29.383 in., showing a variation of a little more than three quarters of an inch.

In April, clouds and moderate showers were prevalent; a killing frost occurred on the 26th, and high winds of variable direction were common. The extremes of temperature at 2, P. M., were 42.25 deg. and 82 deg. The extremes of the daily means were 41.66 deg. and 68.17 deg. The monthly mean was 52.50 deg. The mean height of the barometer for the month was 28.957 in. The extremes of the daily means were 28.664 in.

and 29.235 in., showing a variation of little more than half an inch.

May was showery, especially in the forepart; several keen frosts occurred, one as late as the 24th. The atmosphere was more quiet, and less cloudy than in the preceding month. The extremes of temperature at 2, P. M. were 52 deg. and 86 deg. The extremes of the daily means were 50.33 deg. and 79.50 deg. The monthly mean was 61.63 deg. The mean height of the barometer for the month was 29.004 in. The extremes of the daily means were 28.721 in. and 29.212 in., showing a variation of a shade less than half an inch.

June was remarkably clear, the sky being overcast with clouds at only four observations during the month; the atmosphere was still at the time of more than one-third of the observations; and at no time moved more briskly than a pleasant breeze. The temperature was uniformly high; the extremes at 2, P. M. being 73 deg. and 95 deg. The extremes of the daily means were 63.50 deg. and 82.92 deg. The mean for the month was 75.01 deg.; and what is remarkable, it affords the highest monthly mean temperature of the year. The mean height of the barometer was 29.073 in., from which there was no deviation of more than a few hundredths. Rain fell during the month to a very moderate extent, but more freely here than in many surrounding localities. Electrical disturbances were rare and unimportant.

July fell below the usual amount of rain; yet it furnished a larger supply than the preceding month; and clouds were more prevalent. Thunder and lightning were rare. The winds were uniformly moderate; and nearly half the winds of the entire month are noted as northeastern. The temperature was lower, and something less uniform, than that of the preceding month. The extremes of temperature at 2, P. M. were 62 deg. and 89 deg. The extremes of the daily means were 59 deg. and 78.17 deg. The monthly mean temperature was 71.63 deg. The barometric condition was again remarkably uniform. The monthly mean was 29.085 in.; and the greatest daily mean deviation from this is a fall of two-tenths of an inch.

In August cloudy days were more numerous, but rain, thunder, and lightning, were still below the usual standard; several dense fogs occurred; and the atmosphere was remarkably stagnant, being noted as still at about half the observations in the

month; its principal movements were gentle oscillations between N. E. and S. W. And winds were rarely noted from any other quarter. The extremes of temperature at 2, P. M. were 67 deg. and 93.50 deg. The extreme daily means were 59.66 deg. and 80.50 deg. The monthly mean was 72.15 deg. The barometric condition of the atmosphere continued remarkably uniform, as in the two preceding months. The mean height of the mercury for the month was 29.047 in. The extremes of the daily means are 28.883 in. and 29.205 in., showing a variation of a little more than three-tenths of an inch. About the middle of this month a comet was seen descending after the sun for a number of evenings. A light frost occurred on the morning of the 28th.

In September clouds, fogs, mists, and light rains were common; and a few heavy rains are noted. The winds were very similar to those of the preceding month. The extremes of temperature at 2, P. M. were 55 deg. and 86.50 deg. The extremes of the daily means were 51.33 deg. and 76.92 deg. The monthly mean was 64.51 deg. The mean height of the barometer was 29.077 in. The greatest deviation of any daily mean from this is a fall of a little more than one-third of an inch; a slightly greater variation than occurred in any one of the summer months. No frost occurred during this month.

October, up to the 21st, presented a fine specimen of Indian summer; mostly free from clouds and winds. After that the weather was more variable, yet very little rain fell during the month. The extremes of temperature at 2, P. M. were 41.50 deg. and 79.50 deg. The extremes of the daily means were 35.33 deg. and 59.83 deg. The monthly mean was 46.99 deg. The mean height of the barometer for the month was 29.096 in. The daily mean extremes were 28.662 in. and 29.295 in., showing a variation of more than six-tenths of an inch.

November was remarkable for heavy frosts and dense fogs, with a few rainy days, and a light snow on the 9th. The atmosphere was generally bracing, and free from remarkable winds. The extremes of temperature at 2, P. M. were 39 deg. and 66 deg. The daily mean extremes were 31 deg. and 58.83. The monthly mean was 44.15 deg., being less than 3 deg. below that of October. The barometric column was again remarkably uniform, and high; the mean for the month being 29.177 in. The extremes of the daily means were 28.960 in. and 29.401 in., affording a variation of less than half an inch.

December was unusually pleasant till after the middle, being mostly clear, frosty, and without extremes of temperature. The latter part of the month was boisterous, with cold days, and one considerable snow. The extremes of temperature at 2, P. M. were 14 deg. and 52 deg. The extremes of the daily means were 12.83 deg. and 42.83 deg. The monthly mean was 29.30 deg. The variations in the barometric column were very trifling till toward the close of the month, when they were considerable. The mean height of the mercury for the month was 29.035 in. The extremes of the daily means were 28.362 in. and 29.335 in., a variation of only a shade less than an inch; and the extremes of single observations show a variation of more than an inch.

Emmetsville, Randolph County.—The Committee received a communication from Dr. E. T. Bailey, a practitioner of this place, in reference to intermittent fever and its treatment by *nitric acid.* This communication was a thesis presented by him to the Faculty and Trustees of the Miami Medical College, of Cincinnati, for the degree of M. D. He states that in the section of country in which he resides, there is a large portion of marshy land, and therefore the circumstances are favorable for the development of intermittent fever in the autumn.

The principal point in the communication relates to the use of nitric acid as an antiperiodic. His attention was first called to the use of the remedy by noticing its effects in a case of chronic intermittent fever, which was attended with profuse night-sweats, and for which he administered the remedy.

In this case there had been daily paroxysms for the preceding five days; night-sweats profuse, the tongue coated, and the bowels constipated. Nitric acid was given in doses of six drops diluted with water, in the evening; and he was agreeably surprised to find that the paroxysms did not return on the following day; this circumstance induced him to try its effects as an antiperiodic.

Since that time, he has treated over ninety cases of intermittent fever with this article, with remarkable success. Of this number all recovered except ten; and every one of these unsuccessful cases discontinued the use of the remedy contrary to directions. Fifteen of the whole number were of the tertian type, and seventy-five of the quotidian. In fifty cases there was no return of the chill after commencing the use of the acid. The

others were rarely attended by more than one paroxysm, and in no case by a third. When the patient had a paroxysm after taking the medicine, it was in every case diminished in intensity and duration.

In the practice of our informant, it has entirely superseded every other article for the purpose of interrupting the paroxysms of intermittents. The plan is to give from five to eight drops of the commercial nitric acid, properly diluted, once in six hours, without regard to intermissions or exacerbations. Cathartics and alterants may be necessary for the purpose of changing certain conditions of the system; but so far as the interruption of the paroxysms is concerned, the acid may be given without any preparation of the system whatever.

MICHIGAN. DETROIT.—The following communication in reference to this locality, is furnished by Dr. Z. Pitcher, one of the Committee:—

To GEORGE MENDENHALL, M. D., *Chairman, etc.:*

DEAR SIR—In preparing this short and unsystematic report, which includes a notice of the diseases that have at any time within the last two years been sufficiently prevalent to be entitled to notice as epidemics, my object has been to convey such an idea of their general character, as well as of their relation individually to a predominant or pervading type, as when studied in connection with the meteorology of the period, may ultimately lead to the discovery of some general laws affecting their periodical return, and the establishment of some important general rules for mitigating their violence and diminishing their malignancy and ratio of mortality. You need not, therefore, look for such a critical analysis of the individual cases, as if I were laboring to establish some favorite pathological notion, or to show the propriety of making a doubted nosological distinction.

The observations herein submitted, relate alone to the city of DETROIT, now supposed to contain about forty thousand inhabitants. It is built upon a fresh-water deposit, of sufficient elevation above the river to admit of good drainage, which is secured by sewers, now rapidly being extended through the city. The inhabitants of Detroit are supplied with water from the river, elevated by means of steam-power, and distrib-

uted through the city in cast-iron pipes and wooden and leaden connections. Its purity, absolute and relative, is shown by the analysis of Prof. Silas H. Douglass, of the University of Michigan, an extract from which you will find appended to this report.

The meteorological abstract for the years 1852 and 1853, which is also annexed, has been obligingly furnished by the Rev. George Duffield, D. D.; whose observations on the atmospheric changes of this place are made in conformity to the requirements of the Smithsonian Institution.

I gave you, in 1852, some account of a violent form of disease which made its appearance here in the winter of 1847 and 1848, and expended its force upon the cerebro-spinal meninges, and seemed, from the time of its advent to the date of that communication, to have given character to the diseases occurring within these dates. It is referred to now, for the purpose of showing that the same atmospheric diathesis, producing similar modifications in disease, still exists, and requires unwonted modes of treating disease.

In making my schedule for each month, I have purposely excluded all those forms of disease which were not sensibly affected by, or did not originate from, the epidemic constitution of the air.

I have adopted the following arrangement, in order that the brief notes which I propose to insert from month to month, may be seen directly in connection with the cases to which they refer, and therefore more likely to be read and remarked upon by others.

Schedule of diseases prevalent in Detroit from January, 1852, *to December* 31*st*, 1853.

JANUARY, 1852.

Œdema of the Glottis.	Erysipelas.
Puerperal Fever.	Typhoid Fever.
Pneumonia Typhoides.	Laryngismus.

The cases recorded under the name of œdema of the glottis, have originated as follows:—

E. B., two and a-half years, not known to have been specially exposed, although the weather was intensely cold at the time,

complained of a sense of coldness and of fatigue through the day. At night fever came on, the child grew hoarse, and showed some signs of pain on making the effort to swallow. The throat on examination was found to be red, but not much swelled. The skin was congested and red about the neck and chest, so that the friends were apprehensive of scarlet fever. The cough was croupy, and the respiration stridulous and audible. Forty-eight hours after, the glottis was nearly closed and the child in a state of asphyxia, although we had used calomel, antimony, leeches, and counter-irritation with great assiduity. At this time, we commenced the use of nitrate of silver in a solution containing ʒ i., to ℥ i. of water, which was applied freely and frequently for more than two days, not only to the fauces but down the œsophagus opposite the cartilages of the larynx. This, with a persistent application of our constitutional remedies, carried our little patient safely through.

I saw no case of puerperal fever this month in which there were not indications of its approach, before or at the time of parturition. Careful observation, I feel confident, will establish the fact, that the disease is an epidemic, sometimes the cause of premature labor, and at others excited into action by the incidents of childbirth.

Mrs. B——, after a natural and easy labor, had a mild attack of puerperal fever, which expended its force upon the colon, causing bloody stools, which looked like the expressed juice of the berries of the Phytolacca decandria. Her infant was attacked with erysipelas, and died of gangrene of the scrotum; and an older child died of œdema of the glottis,—the symptoms and history similar to those of little E. B., whose case is described above.

February, 1852.

Uterine Phlebitis.	Typhoid Fever.
Laryngitis.	Typhoid Pneumonia.
Erysipelas.	Puerperal Fever.

Laryngismus.

Scarcely any difference was observable between the diseases of January and February of this year.

March, 1852.

Erysipelas.	Typhoid Fever.
Laryngitis (with Typhoid symptoms).	Puerperal Fever (with Erysipelas).

In this month, we have had modifications of the same general or elementary form of disease. Sometimes it seems to have been proper to give prominence to the local affection; and in conformity to such usage, I have called a case an erysipelas or a laryngitis, when others might, and perhaps with more propriety, have called them both typhoid fever, of which the erysipelas and laryngitis were the local manifestations. The fact that these local affections, as well as the constitutional symptoms were amenable to the influence of quinine, opium, &c., will certainly go far to justify that generalization.

April, 1852.

Puerperal Fever.	Dysentery.
Tonsillitis.	Erysipelas.
Typhoid Fever.	Cholera. (Last day of the month.)

Towards the close of this month there were a few hot days, which changed the local affections, but not the general character of disease.

The cases of puerperal fever seen this month, were all preceded by a chill at the commencement of labor, and attended by afterpains of uncommon severity. The cholera case, as we had but one in April, is reported as an indication of the approach of that scourge. It occurred in an infant six months old, whose mother was suffering from puerperal anemia, which may have been the predisposing cause.

May, 1852.

Puerperal Fever.	Dysentery.	Typhoid Fever.

Nothing specially to distinguish the diseases of May from those of April.

June, 1852.

Typhoid Fever.	Dysentery.	Cholera.

Typhoid fever is becoming less frequent, and cholera and dysentery are taking its place, all exhibiting the same atonic character.

JULY, 1852.

Dysentery.	Cholera Infantum.
Typhoid Fever.	Laryngitis.

Cholera.

I give the following history of one of the cases of dysentery treated this month, for the purpose of showing the relations which symptoms supposed ordinarily to be the signs of widely distinct diseases, may be made to bear to each other during the existence of a pervading epidemic influence.

Mrs. McR——y, at the eighth month of her gestation, was taken with symptoms analogous to both cholera and dysentery, having the intestinal cramps of the one, and the tenesmus and bloody evacuations of the other. The feeble state of arterial action deterred me from taking blood. She obtained some relief from the use of blue pill and opium, when she was prematurely delivered. The day after the birth of her infant, she had a violent chill, and died on the third, of puerperal peritonitis, and her babe about the same time, of erysipelas.

Children taken with cholera infantum sank with remarkable rapidity. Being mostly instances of pure gastro-duodenitis without the copious evacuations of Asiatic cholera, they soon passed into a state of collapse, and died, closely simulating the Oriental epidemic.

AUGUST, 1852.

Cholera.	Dysentery.
Remittent Fever.	Erysipelas.
Typhoid Fever.	Cholera Infantum.

At this time the cases of remittent fever and dysentery, if not successfully managed, would in a few days pass into a state scarcely to be distinguished from Asiatic cholera by their external aspect. Madam C——'s case furnishes an illustration. She was seized with rigors on the 12th. A violent hot stage ensued, accompanied with nausea, but not attended by arterial reaction. On the recurrence of the chill and succeeding paroxysm of fever,

diarrhœa set in, which ended in profound collapse on the fourth day, when she expired.

Some of the cases of dysentery were attended in the latter stages by parotitis.

SEPTEMBER, 1852.

Cholera.	Erysipelas.
Dysentery.	Puerperal Fever.
Remittent Fever.	Laryngismus.

Scarcely any variation in the symptoms of the diseases which occurred in September could be perceived during the month of October. Every thing generically related to cholera, showed a disposition in the latter stages to run into it.

OCTOBER, 1852.

Typhoid Fever.	Typhoid Pneumonia.
Dysentery.	Erysipelas.
Neuralgia.	Cholera.

Our last cases of indigenous cholera occurred this month. They were not numerous, but nearly all fatal, no matter what method of treatment was pursued. The only one, out of hospital, in which I was able to establish a permanent reaction, was followed by a protracted typhoid fever, with symptoms of gastro-duodenitis, and very unlike the instances of arachnitis to which we gave the name of consecutive fever in 1832 and 1834.

NOVEMBER, 1852.

Diarrhœa.	Laryngitis.
Typhoid Fever.	Dysentery.
Erysipelas.	Gastro-duodenitis (collapsing without diarrhœa).

As the weather became colder, cholera subsided; and in its place, and apparently intermediate to cholera on the one hand and typhoid fever on the other, we saw numerous instances of gastro-duodenitis, bearing a good deal of resemblance to yellow fever, which would terminate fatally on the second or third day, and when relieved by appropriate treatment, would exhibit many of the symptoms of typhoid fever, and linger indefinitely.

Postmortem examinations made of these cases showed that the duodenum and the colon were chiefly implicated. The same remark was applicable to some of the October cases of cholera.

DECEMBER, 1852.

Dysentery.	Erysipelas.
Laryngitis,	Scarlet Fever.
Typhoid Fever.	Pharyngitis.

The reduction in atmospheric temperature incident to the season of the year caused an increase in the number of cases of pharyngeal and laryngeal inflammation. During this as during the eleven preceding months of the year, it appeared as though the *vis medicatrix naturæ* of Cullen had become a fiction or figment of the brain, so strikingly have the recuperative powers of the system been paralyzed by the agents producing the various forms of disease incident to the year.

As the season advanced, cases of typhoid fever increased, and in certain instances proved to be decidedly contagious. Others were attended by hæmorrhages from the uterus, of a dangerous character; another class were scarcely to be distinguished from scarlatina, whilst a distinct set closely simulated purpura hæmorrhagica.

1853.

JANUARY.

Pharyngitis.	Dysentery.
Typhoid Fever.	Laryngitis and
Neuralgia. (The sequel often of Influenza.)	Laryngismus. (Relieved by quinine and brandy.)
Influenza.	

FEBRUARY.

Rheumatism.	Erysipelas.
Influenza.	Laryngitis.
Neuralgia.	Dysentery.
Typhoid fever (followed by a peculiar form of ophthalmia).	Dengue.

MARCH.

Influenza.	Dengue.
Erysipelas.	Laryngitis.
Neuralgia.	Puerperal Fever. (Some cases fatal.)

APRIL.

Laryngitis.
Typhoid Fever.
Erysipelas.
Pleuritis.
Bronchitis.
Duodenitis.
Influenza.
Neuralgia.

MAY.

Dysentery.
Laryngitis.
Gastritis.
Typhoid Fever.
Intermittent Fever.
Erysipelas.
Diarrhœa.
Bronchitis.
Influenza.
Neuralgia.

JUNE.

Diarrhœa.
Neuralgia.
Typhoid Fever.
Intermittent Fever.
Dysentery.
Duodenitis. (Fatal in children as cholera.)
Erysipelas.

JULY.

Dysentery.
Puerperal Fever. (Infant dying of Erysipelas.)
Diarrhœa.
Gastritis.
Typhoid Fever.
Remittent Fever.
Neuralgia.
Cholera-morbus.

AUGUST.

Dysentery.
Typhoid Fever.
Diarrhœa (from hepatic congestion).
Rheumatism.
Bronchitis.
Remittent Fever.
Intermittent Fever.
Erysipelas.
Laryngitis.

SEPTEMBER.

Diarrhœa. (Hepatic congestion.)
Remittent Fever.
Typhoid Fever.
Bronchitis.
Erysipelas.
Dysentery.

OCTOBER.

Furunculoid Erysipelas?
Erysipelas.
Diarrhœa (from hepatic congestion).
Remittent Fever.
Dysentery. (Poke-juice evacuations.)
Typhoid Fever.
Neuralgia.
Influenza.

NOVEMBER.

Typhoid Fever.	Diarrhœa (from hepatic congestion).
Erysipelas.	Laryngitis.
Dysentery.	Bronchitis.

DECEMBER.

Typhoid Fever (followed by ophthalmia).	Pneumonia.
Erysipelas.	Neuralgia.
Diarrhœa (from hepatic congestion).	Dysentery. (Stools like juice of Phytolacca.)
Erysipelas.	(Purpura?)

On comparing the schedule of 1853 with that of the preceding year, I am myself surprised at the close analogy between them; the cholera, which did not appear here in 1853, being scarcely an exception, as a diarrhœa from hepatic congestion took its place, and proved as fatal to children as Asiatic cholera.

The remarks already made to illustrate the peculiarities of the months of one year being so applicable to those of the next that it appears to me unnecessary to repeat them, I shall therefore content myself with giving a sketch of the phases assumed by the typhoid fever, with a view to exhibit the protean form of that disease, and to establish its relation to other maladies not ordinarily supposed to belong to the same family.

Case 1st. W—d, a sailor, was sent to St. Mary's Hospital, three days after the advent of his disease. He had had two chills, the reaction succeeding to which had not in either case been relieved by perspiration.

On the day of admission he had a pungently hot skin, with a crimson rash about the neck and chest; his pulse was small and frequent, without force; his tongue was covered with a dry, short, but not very brown coat; he complained of headache, pain in the limbs and back, and tenderness over the right hypochondriac space. His bowels were confined, and urine scanty.

4th day. Prescribed sulphate quinine. gr. ij., hydrarg. cum creta, gr. i. every four hours, warm drinks, hot applications to the extremities, and a blister over the region of the liver.

5th day. Heat of the body more equal, but not appreciably diminished. The feet have become warm, and deafness has supervened. Prescription continued.

6th day. Medicine has affected the bowels, the evacuations being passed in bed. Pulse rather more full. Other symptoms much the same. Continue prescription.

7th day. Medicine still operating. Is conscious—will protrude the tongue, if the act is performed before him, to indicate what we wish him to do. Skin is soft, and pulse less frequent. As the stools are yet dark and not too liquid, gave him rhubarb and magnesia.

8th day. Cathartic has operated well. Patient hears and answers questions, briefly. Tongue and skin moist. Rash disappearing. Urine more copious. Prescribed Mindererus' spirits.

9th day. Convalescent.

Case 2d. Cherodot, a laborer as we learned after he became conscious, was admitted on the eighth day of his illness. He did not recollect having been much unwell before he was seized with a violent chill, which was followed by a daily exacerbation of fever, up to the time he became deaf and unconscious, three days before he came to the hospital. When I first saw him, he had epistaxis, bloody sputa, bloody stools, and occasional vomiting. His pulse was small and frequent. His head and body hot, but legs, and feet and hands, cold. He was delirious and inclined to rise from the bed. He had a dry, brown tongue, and a crimson rash upon the chest. Directions for the attendant: Sponge the limbs with infusion of capsicum; make cold applications to the head, and hot ones to the feet; and lay a large epispastic over the stomach and liver. Give gr. ij. quinine, gr. j. gum camphor, and gr. j. hydrarg. cum creta, every three hours; and let him drink hot mint-tea.

This plan of treatment was continued till the eleventh day of his disease, when the skin became soft, the vomiting and loss of blood from the mucous surface of the nose, lungs, and intestines had ceased, and the rash began to disappear. Under the use of Mindererus' spirits and wine whey, he convalesced rapidly, and in another ten days returned to his labor.

The following gives a view of one of the modifying circumstances in this grade of fever, if it be not, in fact, the principal cause of its adynamic character.

Case 3d. H. M. had a chill only two days before admission, at which time there was a stronger scarlet hue than usual about

the neck and chest, with intense heat of skin, dry cough, vomiting and slight diarrhœa, with scanty and high-colored urine. He had a small and frequent pulse, slight epistaxis, a red, dry tongue, great tenderness over the stomach and liver, violent pain in the limbs and head, with delirium and subsultus tendinum.

Prescription: Apply an epispastic over the stomach and liver, and give him gr. iij. carbonate of ammonia, gr. j. hydrarg. cum creta, and gr. j. gum camphor, every three hours, with tepid drinks.

4th day. The vomiting is relieved, but he passed a restless night.

5th day. Evacuations have improved; delirium, succeeded by coma. Continue prescription, and apply a blister to the nape of the neck.

6th day. Symptoms every way relieved by the appearance of an erysipelatous eruption, extending from the blister on the back of the neck to the one on the abdomen. From this time convalescent.

Case 4th. This case gives another of the phases of this epidemic.

Conrad Scanlon, when brought to the hospital, was livid and cold, except about the head and thorax, where the color deepened to crimson. He had no diarrhœa, but vomited freely; had hiccough, and the kind of coma of a man heavily drunk. His pulse was scarcely to be felt at the wrist. Tongue coated, but not yet dry. No secretion of urine. Showed signs of pain when pressure was made over the stomach and right hypochondriac region. Measures were taken to restore warmth to the surface; but reaction was never perfectly restored. He took, until partial reaction was brought about, such remedies as hot sling, camphor, ammonia, &c. Then an epispastic was applied over the liver and stomach, which enabled him to take and retain small doses of quinine and hydrarg. cum creta, alternated with acetate of ammonia. The evacuations procured by these means were passed in bed. Under this treatment the man improved slowly for a week. The pulse became more natural as well as the temperature of the skin; but the coma never very sensibly diminished till he was aroused from it (not completely) by an attack of neuralgia along the left sciatic nerve, which was soon followed by erysipelas of the leg. Purpura, to a considerable extent, appeared on the right

leg; and shortly before death erysipelas was developed in the parotid glands. Before death, the tongue, teeth, and fauces had the appearance of a patient in the last stages of typhus gravior.

I will add one more case, in which there were petechiæ both on the cutaneous and intestinal surface.

Case 5th. A. B., a resident inmate of the hospital, complained of pain in the head, which was hot, whilst her hands and feet were icy cold. She was costive, and took blue pill. Her fever gradually increased, but continued to remit for the first week. In spite of treatment, the fever became more persistent; diarrhœa and vomiting ensued; dryness of the tongue; delirium; subsultus tendinum, petechiæ, at length coma, then convulsions and death on the twenty-first day.

Autopsy. No ulceration, but an irritated condition of the duodenum and lower portion of the ilium, with distinct points of extravasation under the mucous coat of that intestine, as well as under the cuticle.

In some of the more protracted cases, I witnessed the phenomenon called atalectasis pulmonum; which I at first mistook for hepatization of the lung, but from which recovery was slow, and ultimately appeared to be complete.

One case, which lingered from October, 1853, to April, 1854, furnished some interesting postmortem results. The lungs were hepatized to a considerable extent, as would occur in ordinary pneumonia, if allowed to become chronic, where there was no tendency from constitutional predisposition to tuberculosis. The serous tissue of the lungs and of the abdominal surface of the diaphragm, was thickly studded with depositis, in the former of the size of millet seeds, and in the latter as large as marrowfat peas. To the naked eye, they looked too much like caseum for tubercle. Is it probable that the grade of action common to typhus and typhoid fever will produce a morbid tissue, analogous and yet distinct from tubercle, and which, like the cells of carcinoma, may encroach on healthy structure?

Z. PITCHER.

Detroit, April 25, 1854.

Extract from the Report of Prof. S. H. Douglass, on the Analyses of Waters, referred to in p. 391.

Laboratory of the University of Michigan,
February 11*th*, 1854.

To the Board of Water Commissioners of the city of Detroit:

Gentlemen—On the tenth day of November last, I received from J. Houghton, Esq., Superintendent of your City Water Works, three stoneware jugs, containing water from the following localities, viz.

No. 1. From the iron pipe at the residence of A. C. McGraw, on Jefferson avenue, between Rivard and Russell streets, collected January 25th, 1854.

No. 2. From the wooden logs at the residence of Dennis Cuyle, corner of Orchard and Fifth streets, Crawford Park, collected October 5th, 1853.

No. 3. From a well at the residence of Amos T. Hall, on Woodward avenue, Park lot 11, collected October 5th, 1853.

These waters were accompanied with a request to have them analyzed, and to report the result to you at my earliest convenience, with such suggestions, founded on the analyses, as I should conceive important to be taken into consideration in the construction of the new Water Works. Having completed the analyses, I herewith submit the result.

Before proceeding to consider the composition of the waters above named, it may not be inappropriate to make a few remarks on the varieties of water in common use for domestic purposes, the impurities of each variety, and the sources of those impurities.

These waters may be considered under three varieties.

First.—Rain water, which includes water derived from rain, dew, hail, snow, or frost. When secured before it has come in contact with the earth, or any substance that can impart impurities to it, this is the purest natural water. It contains only a small quantity of air, carbonic acid, and ammonia. Not holding in solution any of the earthy salts, its tendency to dissolve other material with which it may come in contact is very greatly increased. For this reason, as ordinarily secured, it is far more deleterious than any water in use. Thus, falling upon tin roofs,

and being conveyed by tin conductors, with lead soldering, to cisterns, a very perceptible quantity of the poisonous compounds of the latter metal, derived from the soldering, is invariably found dissolved in the water. This I have found to be particularly the case with the water collected from roofs that have been painted with white lead. Collected from shingle or gravel roofs, the evil does not exist to the same extent; yet, in being conveyed through tin conductors, with lead soldering or lead pipe, is clearly perceivable. I do not hesitate to say that rain water, collected in the ordinary mode, used as an habitual drink, must prove highly injurious to health.

Second.—River water. This stands next in purity to rain water. When its source is considered, it must be evident that the water of all rivers must be very far from being pure. The water of all our rivers, lakes, ponds, and oceans, has at one time existed in the air in a state of vapor, from whence it has been precipitated, in a pure state, as rain or snow. This water, coming in contact with the earth's surface, and frequently penetrating its strata, becomes impregnated with the soluble matter of each particular stratum. For instance, in leaching through a limestone or chalk formation, it would become charged with lime; or, in passing over a magnesian limestone, with lime and magnesia. Thus, it will be perceived that this second variety of water must contain variable ingredients; and that a knowledge of the composition of the water becomes an index to the geology of the district, and a knowledge of the geology an index to the composition of the water.

Third.—Spring or well water. Inasmuch as all the water of springs and wells has come in contact with, and leached through the earth, and usually very little time has been allowed for the separation of the clay, sand, &c., held mechanically in suspension, this variety may be considered the most impure water in use. This is more particularly the case with the water from wells dug in a clay soil, and in large towns, where surface-filth accumulates in great abundance.

WATER AS A SOLVENT.

In what form of combination are these earthy salts held in solution? This is a question of some considerable practical importance, and one with which all should be familiar. In some

few cases, the water dissolves the substance directly, as silica (sand) and the sulphate of lime (gypsum); while, in other cases, in order that the water should become a solvent it must contain an excess of carbonic acid gas, or the salt must be in the form of a bi-carbonate. Thus, pure water will dissolve little or no carbonate of lime (limestone); but allow the water to take carbonic acid, and convert the carbonate into a bi-carbonate, and it will readily dissolve a hundredth part of the limestone. It becomes a "hard water." By long exposure of this water to the air, or by boiling it, the free carbonic acid escapes as a gas; consequently, the water loses its power of holding the lime in solution. It becomes turbid and milky, and the lime is deposited. Hence, the calcareous deposits in the vicinity of "hard water" springs, and the calcareous incrustations on the inside of boilers. This carbonic acid is derived, in part, from the atmosphere, and in part from the soil. In the decay of vegetable matter, the carbon of the plant unites with the oxygen of the air, to form the acid. Hence, we find it very abundant in open, porous soils, highly charged with decaying organic matter. Water leached through such soils would acquire carbonic acid, and coming in contact with limestone, would dissolve it in great quantity. A "hard water" would be formed. Boiling expels the carbonic acid, and the lime is no longer dissolved. The water is made soft. If, however, the water is made "hard" by the presence of the sulphate of lime, the sulphate is not affected by boiling. In this case, the lime may be precipitated by the addition of carbonate of soda or potassa. An insoluble carbonate of lime is formed and precipitated, while the sulphuric acid unites with the soda. Hence, the great practical importance of knowing the precise condition of the lime held in solution—that is, whether it is a carbonate or sulphate.

Waters holding in solution the sulphates are liable to a form of spontaneous decomposition, highly deleterious to health, when they come in contact with organic matter, either animal or vegetable. All animal and vegetable matter contains hydrogen. In ordinary decomposition, this gas is liberated; and if, in the nascent state (at the moment of being set free from a previous combination), it comes in contact with the sulphates, it decomposes them, uniting with the sulphur, to form sulphuretted hydrogen, or hydro-sulphuric acid. This is a very noxious gas: and its foul odor is perceived in the exhalations from bilge

water, cesspools, drains, &c. Hence the necessity of avoiding contact with organic matter when the water contains the soluble sulphates. It should not be conveyed through wooden logs, or pumped through wooden pumps. The disinfecting property of chloride of lime depends upon its power to decompose and destroy this hydro-sulphuric acid.

THE ANALYSIS.

In conducting any analysis, the first object with the chemist is, to determine what substances are present. This is called the qualitative examination, or analysis. In the case in question, an indefinite quantity was taken, and, having been divided into several parcels, the proper tests were applied for the detection of every substance liable to be present in natural or mineral waters. This qualitative analysis resulted in the detection of the following substances:—

	No. 1. From Iron Pipe.	No. 2. From Logs.	No. 3. From Well.
Silicic Acid (Flint),	Present.	Present.	Present.
Oxide of Iron,	Present.	Present.	Present.
Lime,	Present.	Present.	Present.
Magnesia,	Present.	Present.	Present.
Potassa,	Present.	Present.	Present.
Soda,	Present.	Present.	Present.
Chlorine,	Present.	Present.	Present.
Sulphuric Acid,	Present.	Present.	Present.
Phosphoric Acid,	Present.	Present.	
Carbonic Acid,	Present.	Present.	Present.
Alumina,	Present.	Present.	
Hydro-sulphuric Acid,	. . .	Present.	Present.

Having thus fixed upon the presence of certain substances, attention was next directed to the determining of the quantity of each of these substances, or the quantitative analysis.

The total quantity of solid matter in a definite quantity of water, after filtration, was determined by evaporating to dryness 3,500 grammes (nearly one gallon) over a water bath. The following table will give the result:—

	No. 1. Iron pipe.	No. 2. Logs.	No. 3. Well.
Solid matter in 3,500 grammes,	.3432	.3893	7.2000

In determining the quantity of the several substances indicated by the qualitative analysis, six parcels of water were carefully weighed out. The object in taking so many parcels was, to avoid the errors that might arise from the accumulation of impurities in the use of chemicals. From number one the chlorine was extracted; from number two the silica, iron, lime, and magnesia; from number three the iron, magnesia, and lime precipitated on boiling, and which are supposed to exist as carbonates, and the same elements held in solution; from number four potassa and soda; from number five sulphuric acid; from number six alumina and phosphoric acid.

In determining the quantity of these substances, it must not be supposed that they were obtained and weighed in the forms above expressed; for this was the case with but a single substance, silica. All the rest were weighed in the form of some one of their combinations, and the quantity of the element sought determined by simple calculation. This process is based on an invariable law in chemical science,—that bodies unite in certain fixed and definite proportions. Thus, chlorine was weighed as a chloride of silver. Now, one hundred parts of the chloride of silver *invariably* contain 24.72 parts of chlorine, and 75.28 parts of silver. Lime was separated as a carbonate of lime; magnesia, as a phosphate of magnesia; potassium as a chloride of platina and potassium; sulphuric acid as a sulphate of baryta, &c. In this manner, the chemist attains to a degree of minuteness that would appear, to an unpracticed person, wholly incredible. Thus, a good balance will turn on the 1-1000 part of a grain (equal to three-tenths of an inch of fine hair). One thousandth part of a grain is a weighable quantity; and yet the one-thousandth part of a grain of chloride of silver contains but the 1-4000th part of a grain of chlorine, a quantity too small to be weighed, but one which may be calculated. It may be proper to state that the balance used was Robinson's, of the best German manufacture. To avoid friction, the pans and beam are suspended on knife-edges, and highly polished cornelian.

The following table will exhibit the quantity of each substance in 1,000 grammes of water:—

	No. 1. Iron pipe.	No. 2. Logs.	No. 3. Well.
Silica (Flint),	.00500	.00583	.02370
Oxide of Iron,	.00500	.01330	.00625
Lime,	.03528	.03192	.33590
Magnesium,	....	.00045	.08910
Potassium,	.00127	.00127	.10460
Sodium,	.00245	.00245	.28740
Chlorine,	Trace.	Trace.	.74890
Sulphuric Acid,	.00550	.00680	.21420
Phosphoric "	.01430	.02385	*
Carbonic "	.01766	.01060	.17635
Alumina,	.01050	.01050	*
Hydro-Sulphuric Acid,	....	Trace.	Trace.
Oxygen, with K. and Na.	.00111	.00142	.00960
Total,	.09807	.10839	1.99600

In determining the manner in which the above substances are combined among themselves to form neutral compounds, the precipitates formed on boiling, were first considered as carbonates; and then recourse is had to the law that governs the distribution of acids and bases, *i. e.* the strongest acids unite with the strongest bases.

The following table will give the result of this calculation for 1,000 grammes, as before:—

	No. 1. Iron pipe.	No. 2. Logs.	No. 3. Well.
Chloride of Potassium,	....	....	.11000
Chloride of Sodium,	....	....	.72520
Chloride of Magnesium,	....	....	.34760
Sulphate of Potassa,	.00283	.00283	.10450
Sulphate of Soda,	.00750	.00750	....
Sulphate of Lime,	....	.00254	.28260
Phosphate of Lime,	.03110	.05192	....
Alumina,	.01050	.01050	....
Magnesia,	....	.00073	....
Silica (Quartz),	.00500	.00583	.02370
Carbonate of Lime,	.03300	.00510	.39190
Carbonate of Iron,	.00814	.02160	.01020
Total,	.09807	.10865	1.99570

From the above table, a very marked difference will be perceived in the composition of the water taken from the wells and

* Not determined.

that from the iron pipe or logs. The large quantity of the chloride of sodium (common salt), chloride of potassium and magnesium, found in the former, clearly indicates its surface origin. The two last salts are cathartic in their properties, and the habitual use of water holding them in solution in any considerable quantities must prove injurious to health.

In addition to the above impurities, the wells of Detroit, being dug in a clay soil and usually in back yards, would be liable to contain organic matter in the process of decomposition. This would be particularly the case during the warm season, when sickness is most likely to prevail.

Abstract of a Meteorological Register kept by Rev. George Duffield, D.D., at Detroit, Michigan, made in conformity to the requirements of the Smithsonian Institution.

1852.

JANUARY.

	Barometer.		Thermometer.		Rain.
Average,	29.503		24.886		1.879.
Maximum,	30.000	23d,	47.000	28th.	
Minimum,	28.960	14th,	—12.000	20th.	
Mean,	29.480		17.300		
Range,	1.040		59.000		

FEBRUARY.

Average,	29.394		28.200		2.527
Maximum,	30.210	20th,	49.000	24th.	
Minimum,	28.650	24th,	0.000	19th.	
Mean,	29.430		24.500		
Range,	1.560		49.000		

MARCH.

Average,	29.505		34.485		4.545
Maximum,	30.250	3d,	64.000	18th.	
Minimum,	28.530	24th,	8.000	3d.	
Mean,	29.390		36.000		
Range,	1.720		56.000		

APRIL.

	Bar.		Ther.		Rain.
Average,	29.383		44.280		4.831
Maximum,	29.780	3d.	40.000	14th, 21st.	
Minimum,	28.910	5th.	30.000	2d, 4th.	
Mean,	29.845		45.000		
Range,	.870		30.000		

MAY.

Average,	29.576		62.838		1.197
Maximum,	30.000	5th.	88.000	29th.	
Minimum,	29.120	1st.	45.000	20th.	
Mean,	29.560		66.500		
Range,	.880		43.000		

JUNE.

Average,	29.553		73.380		4.866
Maximum,	29.870	14th.	91.000	15th.	
Minimum,	29.180	8th.	54.000	4th.	
Mean,	29.525		72.500		
Range,	.690		37.000		

JULY.

Average,	29.583		77.665		4.832
Maximum,	29.840	20th.	91.000	21st, 22d.	
Minimum,	29.370	1st.	60.000	2d.	
Mean,	29.605		75.000		
Range,	.470		31.000		

AUGUST.

Average,	29.700		75.885		2.409
Maximum,	29.980	30th.	94.000	9th.	
Minimum,	29.450	4th.	64.000	4th, 28th.	
Mean,	29.715		74.000		
Range,	.530		30.000		

SEPTEMBER.

Average,	29.685		64.995		6.034
Maximum,	30.060	16th.	90.000	1st.	
Minimum,	28.880	18th.	43.000	30th.	
Mean,	29.470		66.000		
Range,	1.180		47.000		

OCTOBER.

	Bar.		Ther.		Rain.
Average,	29.700		59.999		3.935
Maximum,	29.970	16th.	83.000	2d.	
Minimum,	29.400	18th.	38.000	23d.	
Mean,	29.635		60.500		
Range,	.570		45.000		

NOVEMBER.

Average,	29.601		38.150		2.719
Maximum,	30.160	21st.	58.000	6th.	
Minimum,	29.190	2d.	26.000	17th.	
Mean,	29.675		42.000		
Range,	.970		32.000		

DECEMBER.

Average,	29.694		33.980		6.826
Maximum,	30.200	22d.	53.000	2d.	
Minimum,	29.350	7th.	14.000	5th.	
Mean,	29.775		38.500		
Range,	.850		39.000		

1853.

JANUARY.

	Barometer.		Thermometer.		Rain.
Average,	29.836		30.322		0.877
Maximum,	30.430	28th.	49.000	8th.	
Minimum,	29.480	23d and 25th.	—1.000	26th.	
Mean,	29.915		24.000		
Range,	.950		50.000		

FEBRUARY.

Average,	29.835		30.039		2.494
Maximum,	30.090	9th.	49.000	1st.	
Minimum,	29.600	10th.	11.000	9th.	
Mean,	29.845		30.000		
Range,	.490		38.000		

MARCH.

Average,	29.461		39.365		3.181
Maximum,	30.150	10th.	66.000	30th.	
Minimum,	29.690	4th and 31st.	18.000	15th.	
Mean,	29.920		42.000		
Range,	.460		48.000		

APRIL.

	Bar.		Ther.		Rain.
Average,	29.733		52.315		5.934
Maximum,	30.000	15th.	81.000	28th.	
Minimum,	29.560	22d.	36.000	14th.	
Mean,	29.780		58.500		
Range,	.440		45.000		

MAY.

Average,	29.620		62.785		7.977
Maximum,	29.980	1st.	89.000	28th.	
Minimum,	29.340	22d.	50.000	7th.	
Mean,	29.660		69.500		
Range,	.640		49.000		

JUNE.

Average,	29.739		80.330		2.567
Maximum,	29.990	12th.	96.000	14th, 15th.	
Minimum,	29.540	6th.	67.000	1st.	
Mean,	29.765		81.500		
Range,	.450		29.000		

JULY.

Average,	29.756		78.165		2.233
Maximum,	29.920	13th.	91,000	23d, 24th.	
Minimum,	29.460	15th.	62.000	16th.	
Mean,	29.690		76.500		
Range,	.460		29.000		

AUGUST.

Average,	29.449		78.495		3.597
Maximum,	29.950	28th.	96.000	10th, 11th.	
Minimum,	29.500	24th.	61.000	27th, 28th.	
Mean,	29.725		78.500		
Range,	.450		35.000		

SEPTEMBER.

Average,	29.706		68.680		2.557
Maximum,	29.990	29th.	90.000	5th.	
Minimum,	29.290	14th.	49.000	29th.	
Mean,	29.640		69.500		
Range,	.700		41.000		

OCTOBER.

	Bar.		Ther.		Rain.
Average,	29.795		51.865		2.571
Maximum,	30.070	29th.	71.000	16th, 17th.	
Minimum,	29.550	22d.	32.000	24th.	
Mean,	29.310		51.475		
Range,	.520		39.950		

NOVEMBER.

Average,	29.910		44.130		4.393
Maximum,	30.210	4th.	65.000	19th.	
Minimum,	29.680	9th.	22.000	25th.	
Mean,	29.945		43.500		
Range,	.530		43.000		

DECEMBER.

Average,	29.540		30.608		1.461
Maximum,	30.050	7th.	51.000	11th, 12th.	
Minimum,	29.560	24th.	9.000		
Mean,	29.800		30.000		
Range,	.490		42.000		

GEO. DUFFIELD.

CASS COUNTY.—Information in respect to this locality was furnished to the Committee by Dr. E. Reading.

Dysentery, as it prevailed in 1851. This disease commenced late in August, and terminated in October. Its prevalence was general, and it was extremely obstinate and fatal; so much so as to greatly alarm the inhabitants, and discourage physicians in reference to the power possessed by medication over the disease. The section of country in which it prevailed, is principally level and intersected with numerous ponds and small lakes. A small stream of water traverses it, across which a dam has been thrown for several years, for mill purposes. The circumstances are favorable for the production of malarious diseases; and they have prevailed extensively for years past. The first cases occurred in a house near the mill-dam: two of the inmates were attacked, and both died.

The commencing symptoms were slight, and consisted of chil-

liness, lassitude, and a feeling of great prostration. The characteristic symptoms made their appearance by frequent and copious muco-sanguineous stools, but gradually decreasing in quantity, and attended, in most instances from the commencement, with severe tenesmus. As the disease progressed, the stools became more serous, although bloody, and contained flocculent substances resembling mucous membrane, which were suspended in them. In some cases they were dark and thick, resembling jelly, and the tenesmus was excruciating. The pulse was frequent, small, and wiry in the commencement, but in some protracted cases became soft and compressible, ranging from 90 to 150. The skin was hot and dry in the beginning; but as the powers of nature began to fail, the surface was covered with a clammy perspiration. The urine was scanty, and in most cases high colored, but occasionally pale. The fever was invariably of a low grade, but some of the attendant symptoms differed widely in different cases. In some, the tongue was covered with a white, creamy fur, but with red tip and edges, at the commencement of the disease, which became dry and changed to a dark brown or black color; and in some instances large crevices were formed on its surface. In other cases the tongue was very red, dry, and shiny: these were the most severe. The appetite was wanting, and the digestion much impaired; and in many cases there was considerable gastric irritation. The abdomen was not generally much distended, but very tender to the touch. Nervous exhaustion and irritability, with anxiety and restlessness, usually existed.

Causes.—The season throughout was very wet, with some excessively warm days; but the nights were chilly and damp. Our reporter thinks the origin of this disease was undoubtedly malaria, which from some inexplicable cause was directed to the mucous membrane of the bowels; but why it visited this particular section of country mainly, and spread in each direction from the place of beginning, is a matter of speculation. The adjoining country was equally malarious; and there was a typhoid form of fever (the prevailing disease), with occasionally an aggravated case of diarrhœa. The cases of typhoid fever presented both of the conditions of the tongue that have been alluded to as accompanying dysentery. He also thinks it was contagious, and its progress limited by want of contact; and yet admits that this view was not sufficient to solve the question. The question is asked by him,

"Was not malaria the predisposing, and contagion the exciting cause of the disease?"

Proportional Mortality.—In a section of four miles square, where the disease first made its appearance, the number of attacks ranged from one hundred to one hundred and fifty; and of this number sixty terminated fatally. This terrible mortality caused among the people great distrust of the power of medication, and even physicians lost confidence in themselves. It did not appear to be influenced by age, sex, or nativity, either in its attacks or severity.

The *duration* of the disease in individual cases was very various; some terminated fatally within forty-eight hours from the beginning of the attack, and others were protracted weeks, and even months, and would finally terminate fatally. Recoveries were usually very tedious, even in cases that were considered slight.

Treatment.—Almost every variety of practice, regular and irregular, was tried; but after all, the regular profession was looked upon as the most reliable resource in difficulty.

The treatment that answered best, according to our informant, and in his hands, was morphine, quinine, and diffusible stimulants, such as camphor, carbonate of ammonia, &c., administered freely. The practice was to administer a cathartic (usually in the beginning), provided the patient was robust and plethoric. Castor-oil and oil of turpentine, or bicarbonate of potash and rhubarb, or for children calcined magnesia and rhubarb, were used for this purpose. As soon as the bowels were cleared, the narcotic and stimulant articles above alluded to were given, in doses demanded by the condition of the patient, which in some instances were very large. The quinine was usually suspended in twenty or thirty-six hours. Blisters over the epigastric region, and also to the extremities, and mustard plasters also, were frequently used. Enemata composed of starch and laudanum, were used for tenesmus, as was also the nitrate of silver. After the acute stage had passed, tonics and anodynes were used, modified according to the condition of the patient. Upwards of sixty cases were treated by our reporter successfully; but whether these were all that he treated, is not stated; it is probable they were not. We are, therefore, uninformed as to the proportion of recoveries under this treatment. This treatment is, however, highly extolled.

Calomel appeared generally to be injurious; it increased the frequency and amount of the stools, the prostration, the irritation, inflammation, and tenesmus. It is stated, that of those placed under the calomel and opium treatment, nearly all died. Neither vegetable nor mineral astringents seemed to have much, if any, good effect.

DISEASES OF 1852 IN THE SAME LOCALITY.

This year has been one of general health, compared with those which have preceded it. During the winter of 1851 and '52 pneumonia prevailed, and was fatal in many cases. It was of a typhoid character, and presented nothing else peculiar. The proper treatment was stimulating, together with expectorants and extensive blistering.

A few cases of cholera infantum and cholera morbus occurred, but no epidemic cholera. They had nothing unusual in their appearance, excepting that they were very obstinate, and often a precursor to some other disease.

Diarrhœa and *dysentery* prevailed to a very limited extent the past season, but were easily checked by the ordinary remedies.

Erysipelas.—There was considerable of the phlegmonous variety of this disease. It was attended with a low grade of fever, and presented nothing else peculiar. There appeared to be a predisposition to this form of inflammation, and abscesses of every description were remarkably frequent.

All of the diseases of the past two years have partaken largely of the typhoid character, and bore stimulants remarkably well.

Intermittent and *remittent fevers* have been rather limited in amount, and showing themselves only after sudden atmospheric changes. They were more protracted than usual, and the sulphate of quinine did not have its usual prompt and decided effect. Strychnine has been extensively used, and with great advantage.

Typhoid fever has prevailed considerably, perhaps more than any other single disease, but very often preceded by cholera morbus, remittent or intermittent fever, or dysentery: generally the disease was not protracted, and but few cases died. Diffusible stimulants and diaphoretics were generally used, and strychnine in some cases; alterants and blistering were also sometimes indicated.

CENTREVILLE.—Information respecting this locality was furnished by Dr. S. D. Richardson.

Dysentery.—This disease has prevailed as an epidemic during the past three autumns, in this place and vicinity. In August and September, 1850, it was very severe, and but few entirely escaped its influence. In children about twenty-five per cent. of the cases were fatal, and in adults about three per cent. One of the most prominent features of the disease was obstinate hepatic derangement. It often commenced with a diarrhœa, without bile, which soon terminated in dysentery. The liver was congested, and did not perform its office properly.

The treatment used by Dr. Richardson was to give calomel, ipecac. and ext. hyosciamus, followed by castor-oil. After the operation of the oil, ipecac. and hyosciamus were again given. Opiate injections were also used, when there was much tenesmus. Hyd. c. creta also, after the first few days; and spirits of turpentine was added to the castor-oil, when exhibited as a cathartic. Sulphate of quinine was given after the inflammatory symptoms had passed. It was thought by our reporter that opium perpetuated the hepatic derangement, and thereby the dysenteric difficulty: it was consequently avoided. During the year 1852, the disease was much lighter; there was less hepatic difficulty, and it was easily controlled by the ordinary remedies, and opium was serviceable.

Erysipelas has prevailed as an epidemic for the last two years (1851 and 1852), usually affecting the head and face. No fatal cases occurred. The solution of the sulphate of iron was tried, and found not to answer a good purpose. A solution of nitrate of silver, fifty grains to the ounce, was the best local application. Sulphate of quinine, in the latter stage of the disease, was found to be an essential part of the treatment.

Puerperal peritonitis prevailed cotemporaneous with erysipelas in this region. In some cases the erysipelas attacked the labia and vagina, and was soon followed by puerperal peritonitis.

It was undoubtedly transmitted by the physician in some instances. The disease was of the adynamic form; and it was generally fatal, not more than one in four recovering. The patients did not bear blood-letting well; fainting being easily produced by it. It was difficult to produce ptyalism, but when accomplished it was thought to be beneficial.

Intermittent and *remittent* fevers have greatly diminished.

and typhoid fever has taken their place, within the last three years.

Measles prevailed to some extent during the past year, but presented nothing peculiar.

Coldwater, Branch County.—Information respecting this locality was obtained from Dr. J. H. Beech. No disease prevailed during the past year (1853) in an epidemic form. Pertussis and dysentery approached nearer to it than any other diseases.

January. During the first half of the month, rheumatism and inflammation of serous membranes, in the latter half a few cases of parotitis and rubeola simplex, occurred.

February. Influenza of a mild form.

March. Influenza of a mild form and nervous diseases, such as chorea, tic doloreux, etc.

April. Bronchial affections.

During the months of March and April, an unusual amount of uterine irritation occurred in the first months of pregnancy, without fever or other apparent cause.

May. Pneumonia and renal diseases (kind not stated).

June. Pneumonia, pertussis, and intermittent fever.

July. Pertussis, intermittent, and catarrhal fevers, and dysentery.

August. Pertussis, cholera morbus, and diarrhœa, often terminating in dysentery.

September. Diarrhœa and dysentery. Intermittent fever. The diarrhœa and dysentery of the last two months appeared to be produced, in many cases, by the free use of fruits which ripened at this time.

October. Diarrhœa and dysentery attended with fever, pertussis, remittent and intermittent fever, eczema, and other cutaneous diseases. Pneumonia, and continued fever of a mild form, with enteric disorder.

November. Fever as before stated. Pertussis.

December. Bronchitis and pulmonary congestion.

Vaccination appeared to ameliorate pertussis. Furunculoid diseases have been common during the last eighteen months. Paronychia and kindred affections have also been of frequent occurrence.

This place is situated in latitude 41° 50′, longitude 85° 30′. Altitude, two hundred and fifty feet above Lake Erie.

GRAND RAPIDS, KENT COUNTY.—We are informed by Dr. A. Platt, of this place, that during his residence there (eleven years), no epidemic has occurred until November, 1852, when the scarlet fever showed itself in this form. Previously, it occurred sporadically. It was mild in its character; death seldom occurring, except from the sequelæ, and then from inflammation of serous membranes.

The treatment thought to be best, was of a mild character.

Paronychia has been a very common disease during the year 1853.

Several cases of typhoid fever occurred during the month of December, and the epidemic constitution of the season seemed to predispose to this form of disease.

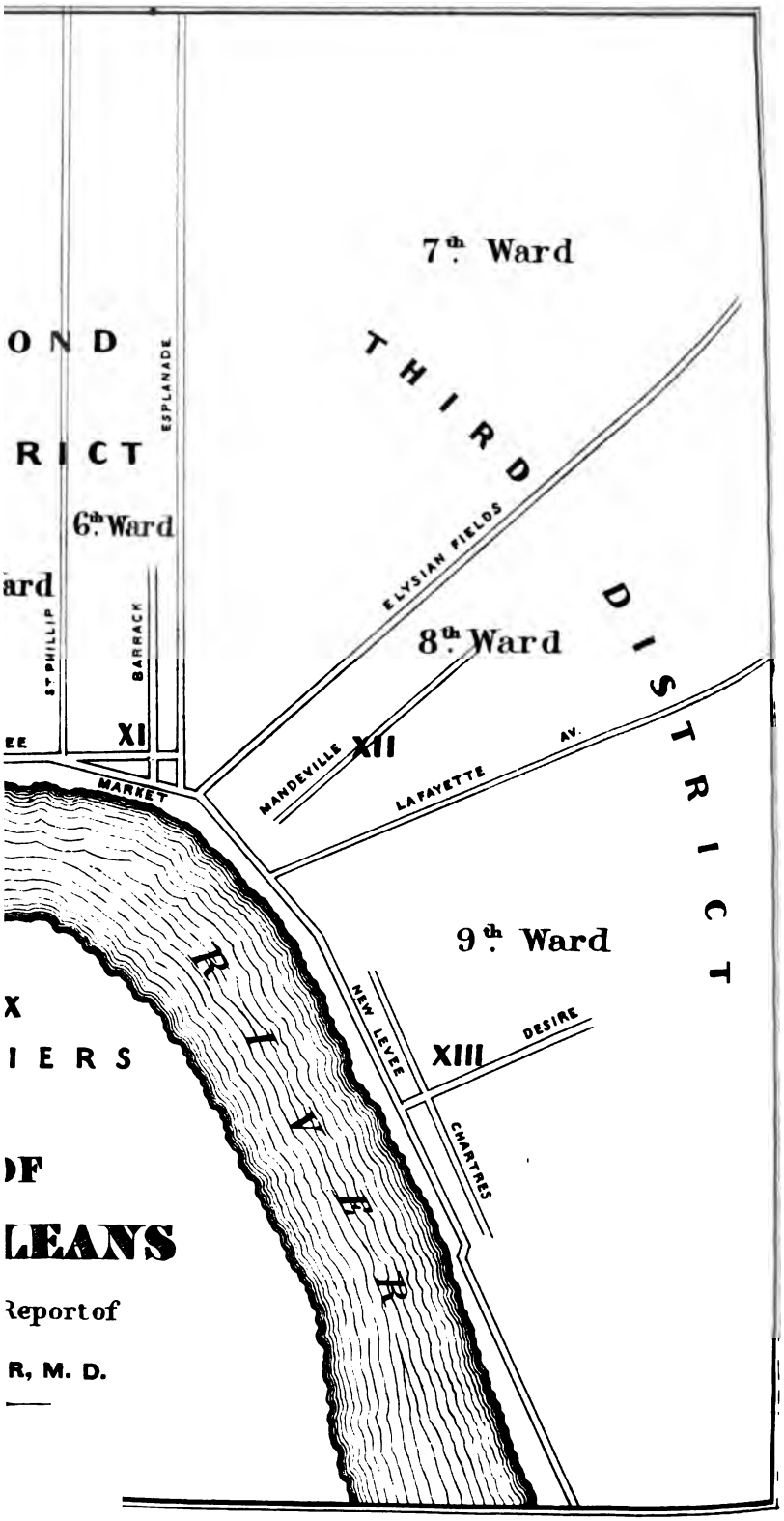
GEO. MENDENHALL,
Chairman.

REPORT ON THE EPIDEMICS

OF

LOUISIANA, MISSISSIPPI, ARKANSAS, AND TEXAS,

IN THE YEAR 1853.



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REPORT ON THE EPIDEMICS OF LOUISIANA, MISSISSIPPI, ARKANSAS, AND TEXAS, IN THE YEAR 1853.

BY E. D. FENNER, M. D.

OF NEW ORLEANS, LA.

BEING sole reporter on the epidemics of four large States, during a year that must be ever memorable for the extent of sickness and mortality in this region, and not having been duly apprised of the appointment until near its close, I trust I may justly claim the indulgence of the reader for any imperfections that may appear in the Report. But for a willingness to undertake any duty that may be imposed upon me by an honorable Association, with which I have been connected from its inception, I should at once shrink from the task before me as one to which I could not hope to do justice under existing difficulties; as it is, however, I shall make the effort, believing that *he who earnestly and sincerely does his best in a good cause, can hardly fail to accomplish something that will prove more or less useful.*

During the past year, two of the most terrible epidemic diseases that ever afflicted mankind have prevailed, to a greater or less extent in parts of the extensive region assigned to my notice. I mean *cholera* and *yellow fever*. Small-pox has also appeared in several places; and other epidemics, such as measles, scarlatina, and hooping-cough, have made us their customary annual visitations.

The three last-named diseases have not presented a very malignant character; nor have I any thing new to offer in regard to their management.

In the city of New Orleans these diseases prevail almost invariably every spring; and it is perhaps worthy of note that *they pre-*

vail most extensively in those quarters that are in the worst sanitary condition; which would appear to indicate that if they do not actually originate from causes there existing, they at least meet with influences which tend strongly to *localize* any cause of disease that may be afloat in the atmosphere.

Small-pox is annually introduced into our city from foreign ports, and from us it seldom fails to be conveyed to one or more places in the interior of the country. On account of the general neglect of the great *prophylaxis*, vaccination, it sometimes prevails to a considerable extent in the country, causing a terrible panic. Such was the case last spring in the neighborhood of Mansfield, Louisiana, and this spring at Little Rock, Arkansas. Mississippi is the only State in my district that has any such thing as a vaccine institution or agency.

Epidemic Cholera. This disease seems still to linger about New Orleans and along the Mississippi river, occasionally amounting to a moderate epidemic in the city, and on some of the plantations along the coast.

On examining the mortuary records of New Orleans for the year 1853, I find one or more deaths from cholera reported in every month, excepting September. The largest number occurred in the month of December, amounting to three hundred and thirty-two. Before the expiration of that month, the disease had almost entirely vanished; the check to its progress apparently being a sudden change of weather from warm and damp to cold. This effect has been uniformly observed in New Orleans since the last outbreak of the epidemic in 1848. The whole number of deaths from cholera in this city during the year was five hundred and ninety-four.

It thus appears that we have had more or less of this disease in New Orleans and the region around for about *five years and a half*, which corresponds pretty well with the course it took on the first outbreak of the same epidemic in 1832.

At that time it was seriously apprehended that cholera had become completely domiciliated in the lower portion of the Mississippi valley, and would remain permanently amongst us; but such proved not to be the case, as we had almost a complete exemption for the ten years from 1838 to 1848, when there was a fresh and distinct outbreak of the epidemic with terrific force. How much longer it will remain with us, it is impossible to say; the facts which have been observed on both of these occasions go

to show most plainly the powerful influence of *local causes* as well in *perpetuating* as *localizing* the disease. It certainly prevails *most* and *worst* among the poor, and in those places where sanitary measures are most neglected—such as low, filthy, and crowded habitations.

Since cholera has become so common a disease, nothing is said now-a-days of its *contagiousness* or communicability from person to person. The thousands upon thousands of cases which have been observed to *display no such power* seem to have settled that vexed question *for the present;* yet, if the disease should disappear, and return again after a lapse of ten or fifteen years, all this will be forgotten, and memory will cling alone to those traditions and opinions which, though founded in error, coincide more fully with popular apprehensions.

I am disposed to believe that when epidemic cholera first breaks out, being usually then of a malignant type, it may *sometimes* be conveyed through the media of persons and families to distant places, and there communicated to persons who would have escaped the disease without this connection; but the numerous instances that have been observed in which the same result *did not follow* such exposure, show most plainly to my mind that this is neither *the only* nor even *the principal way* in which this disease traverses the world. If it were so, its fatal progress would long since have been arrested.

I have nothing new to offer in the treatment of this disease. If taken in time, and properly attended to, I believe it to be one of the most *curable* of diseases; but if neglected until cramps and rice-water stools appear, it is perhaps the most unmanageable and fatal. Unfortunately, the latter is too often the case, not only amongst the ignorant poor, but also amongst the most intelligent classes of people. The disease appears to steal upon its victim in so insidious a manner as to elude observation until it has him completely within its fatal grasp. Such was the case with the lamented Dr. Hester, late editor of the New Orleans Medical and Surgical Journal. He had a severe attack of cholera about the 12th of November, from which he narrowly escaped with his life. Yet, notwithstanding this serious admonition, he suffered the disease to steal a march upon him, on the last day of that month; and before he could be persuaded to use active remedial agents, he was plunged into irreparable collapse.

The next epidemic to which I shall invite attention, is the great scourge of our southern cities.

Yellow Fever.—It is now but little more than half a century since this terrific disease first prevailed as an epidemic in the lower portion of the Mississippi valley; the year 1796 being the first of its appearance in the city of New Orleans. Since that time it has prevailed on numerous occasions, not only at New Orleans, but at several towns along the river as high as Vicksburg, and a few places in the interior of the State; but never has there been so wide-spread and so fatal an epidemic in this region, as during the year just past. The epidemic of 1853 will mark a *memorable epoch* in the history of Louisiana. Heretofore the ravages of this terrible pestilence have been restricted almost entirely to this city and some of the smaller towns; but in 1853 it attacked every town along the river, as high as Napoleon, at the mouth of the Arkansas river, every village in Mississippi and Louisiana south of Vicksburg, and almost every plantation along the coast below Natchez. The sea-coast of Texas, too, was severely scourged, as were also several small villages in the interior of that State.

A *full* history of so wide-spread an epidemic, would necessarily demand a larger space than could be allowed in the volume of Transactions; yet it may not be improper to insert a review of the most important facts I have been able to ascertain relative to *the origin, progress, nature, and treatment* of the disease, at the various places where it prevailed.

The facts belonging to this epidemic bear forcibly upon all the debatable questions that have ever arisen in the history of yellow fever; such as whether or not it be of domestic origin in the United States, or is imported from abroad; whether it is communicable from person to person, or transportable in vessels and goods; whether persons are liable to more than one attack: and lastly, whether it be a disease *sui generis*, separate and distinct from all others, or only one of the various forms or types of endemic fever commonly attributed to *malaria*. I shall take occasion to state the impression made upon my own mind by the facts of this epidemic, so far as they have been ascertained relative to all these important questions, leaving the reader the privilege of forming his own conclusions.

In my previous writings on the yellow fever of New Orleans, extending back over the last ten years, I have earnestly endeav-

ored, faithfully and impartially, to report all the material facts and circumstances relative to the disease as it appeared at the time; openly declaring the inferences and conclusions which, to my mind, the premises most reasonably authorized, but endeavoring, at the same time, not to permit myself to become so wedded to the opinions expressed as to warp my judgment or pervert my observation. I have not sought to establish or support any particular opinions on debatable points at the hazard of truth,—which has been the great object of my search; and if I have erred in pursuit of it, I trust I shall become convinced of my error. My desire has been to write the history of yellow fever as it prevailed in my day and neighborhood, rather than to appear as a partizan debater of mooted questions. On the present occasion, I shall continue the course I have pursued for the last ten years: I shall lay before the reader all the facts, relative to the late epidemic, I have been able to collect from personal observation and reliable sources, give my inferences, and leave the reader to form his own opinions.

I have already published a pretty full history of the late epidemic as it prevailed in New Orleans, from which I shall extract such matters as may appear necessary to my present purpose. Since that was written, however, I have ascertained some additional facts relative to the first appearance of the disease, which will be inserted in their proper place. As the great epidemic originated in this city, or at least first appeared here, I deem it proper to dwell minutely, but as briefly as possible, upon all the material facts in connection with it here. At this point I shall be aided by the labors of the Sanitary Commission, which have been kindly submitted to my inspection. I have also corresponded with the physicians of various places where the epidemic prevailed, and obtained much valuable information, which will be submitted in order.

Such are the sources from which I shall draw the materials of this report. As for the inferences and opinions which I may venture to express, they can pass for what they are worth.

The epidemic at New Orleans.—I shall commence my account of the epidemic here with a brief notice of the meteorology of the year, and the sanitary condition of the city. I am indebted to Dr. E. H. Barton for the following abstract from his Meteorological Register, which is kept with much care and minuteness.

Abstract of a Meteorological Register kept in the city of New Orleans, by E. H. Barton, M. D.

1853.

JANUARY.

	Maximum.	Minimum.	Average.
Barometer,	30.77 in.	29.98 in	30.313 in
Thermometer,	71°	33.5°	47.2°
Dew Point,	59°	30.8°	44.93°
Rain; days,	4		
" nights,	4		
" Quantity,	3.190 in.		

Winds, northerly, 22½ days; southerly, 2¾ days.

FEBRUARY.

Barometer,	30.53	29.69	30.238
Thermometer,	77	36.5	56.05
Dew Point,	68	31	50.48
Rain; days,	5		
" nights,	4		
" Quantity,	4.6		

Winds, southerly, 12½ days; northerly, 9¾ days.

MARCH.

Barometer,	30.67	29.9	30.262
Thermometer,	78	43	62.43
Dew Point,	71	36.8	56.17
Rain; days,	8		
" nights,	4		
" Quantity,	6.87		

Winds, northerly, 15 days; southerly, 12½ days.

APRIL.

Barometer,	30.44	30.11	30.260
Thermometer	85	50	70.39
Dew Point,	71.5	41.5	66.60
Rain; days,	2		
" nights,	0		
" Quantity,	1.848		

Winds, southerly, 15½ days; northerly, 8½ days.

MAY.

	Max.	Min.	Average.
Barometer,	30.38	30.05	30.127
Thermometer,	88	60	73.32
Dew Point,	74.7	52.8	67.11
Rain; days,	5		
" nights,	0		
" Quantity,	3.84		

Winds, southerly, 12½ days; northerly, 9½ days.

JUNE.

Barometer,	30.37	30.12	30.256
Thermometer,	91	70	80.73
Dew Point,	80.9	66.3	73.20
Rain; days,	11		
" nights,	0		
" Quantity,	1.757		

Winds, southerly, 11 days; northerly, 9½ days.

JULY.

Barometer,	30.37	30.11	30.255
Thermometer,	89	71	79.88
Dew Point,	80.9	66.5	72.13
Rain; days,	18		
" nights,	4		
" Quantity,	11.708		

Winds, southerly, 11 days; northerly, 9½ days.

AUGUST.

Barometer,	30.29	30.04	30.194
Thermometer,	89	72	81
Dew Point,	79.4	66.2	78.08
Rain; days,	11		
" nights,	0		
" Quantity,	6.34		

Winds, northerly, 7¾ days; southerly, 2¼; east, 9; west, 5.

SEPTEMBER.

Barometer,	33.33	30.02	30.191
Thermometer,	86	60	76.23
Dew Point,	78.3	50.3	70.93
Rain; days,	14		
" nights,	3		
" Quantity,	5.7		

Winds, northerly, 4¼ days; southerly, 3; east, 12.

OCTOBER.

	Max.	Min.	Average.
Barometer,	30.51	29.96	30.231
Thermometer,	81	48	66.81
Dew Point,	74.5	31.9	59.31
Rain; days,	3		
" nights,	3		
" Quantity,	5.175		

Winds, northerly, 16 days; east, 9¾ days.

NOVEMBER.

Barometer,	30.46	30.14	30.329
Thermometer,	75	45	64.92
Dew Point,	60.5	36.1	59.46
Rain; days,	6		
" nights,	3		
" Quantity,	7.032		

Winds, northerly, 12 days; easterly, 12½ days.

DECEMBER.

Barometer,	30.48	29.57	30.033
Thermometer,	68	34	53.06
Dew Point,	65	24.2	47.07
Rain; days,	7		
" nights,	4		
" Quantity,	4.56		

Winds, northerly, 13 days; easterly, 6 days.

From this abstract we may learn that the winter was quite cool and dry, but without any very cold weather. I did not see any ice in the open gutters of the city, nor was the ground frozen in the heart of the city.

The spring was quite variable; alternately hot and cold, and rather dry. Vegetation *remarkably backward.*

From the 12th to the 20th of May the days were *very hot*, whilst the nights were so cold as to render one or two blankets necessary to comfort. The thermometer rose to 88°, which is within one degree of the highest point in July. On the 21st there was a sudden change, the weather becoming quite cold. This continued for two or three days; and it was about this time, as well as I have been able to ascertain, that the first cases of yellow fever appeared in the city.

The summer was hot, though not unusually so. It will be seen that the *average* of the thermometer was above 79°, which some contend is necessary for the prevalence of yellow fever as an epidemic. The summer was likewise *quite wet*, though not as much so as others in which there was not so much yellow fever.

The heat of summer very gradually declined as autumn approached, so that September differed but little from August; yet the epidemic ceased its dreadful ravages, with the exception of sporadic cases.

October and November were mild, dry, and delightful, displaying the accustomed beauties of what is called *Indian summer*.

Sanitary condition of the city.—In the winter and spring, when the weather was comparatively dry, the streets and gutters were in as good condition as is ever observed in this city, at all times bad enough; but when summer came, with its scorching sun and frequent rains, the streets, alleys, gutters, batture, privies, vacant lots, etc., were neglected to such an extent by the Street Commissioner, whose duty it is to have them kept in good order, as to call down upon him the indignation of the people and the bitter denunciations of the press. We extract the following:—

"The sanitary condition of the city was *most miserable.* Indeed it was so bad that if it had given rise to *Egyptian plague* instead of yellow fever, it ought not to have surprised any one who was fully aware of its whole extent. After this account of our sanitary condition, it will doubtless appear strange to the distant reader, that the citizens of New Orleans should look *abroad* instead of *at home* for the origin of yellow fever."*

We will now proceed with the rise and progress of the epidemic, and give as many of the attendant circumstances and facts as we were able to ascertain from careful inquiry at the time, together with such as have since been ascertained. Since writing the history of the epidemic in New Orleans I have learned of at least two cases which occurred earlier than any therein mentioned. I shall give the dates of the first cases, and designate the different localities by figures on the accompanying map.

* N. O. Delta, June 22d.

Commencement of the epidemic. Date and locality of the first cases.

May 15th. Case I. *Ship Niagara, near the head of Robin street.* (Fig. i.) From the best information I have been able to obtain, I think this may be set down as the first case of the epidemic. I am indebted to Dr. A. H. Bayles for the facts.

On Sunday, the 15th of May, the stewardess of the ship Niagara went from the ship to the lower part of the city, a distance of perhaps two miles, on a visit to her brother-in-law, and walked back in the evening, greatly over-heating herself. A few days previous she was severely beaten by her husband, but had recovered from her bruises. On the evening referred to she was attacked, after getting back to the ship, with a chill, soon followed by violent fever, with pains in the head, back, and limbs. On the following morning, May 16th, Dr. B. was called on board the ship to see her. Says he found her with hot fever; same pains, also pain in the stomach; nausea and vomiting; face flushed; eyes injected. Dr. B. then mentioned that the case looked very much like yellow fever. He continued to attend her till Wednesday, the 18th, when, contrary to his earnest advice, her brutal husband had her removed to his brother's, in the 3d district. She was now at the critical stage of the fever, and could not be moved without great risk. She was made to walk from the ship to an omnibus, and fainted once or twice before she got to her destination. Dr. B. did not see her again, but learned from her husband that she died on the 20th, *after throwing up a quantity of black matters*—also that *the corpse became yellow.* These are all the facts in the case furnished by Dr. Bayles; and, although not all witnessed by him, I think they are sufficiently authentic to justify the conclusion that it was a case of yellow fever. Let us now look to the ship Niagara, and see how she happened to have the first case of yellow fever.

On inquiry I ascertained that "The American ship Niagara arrived here on the 30th of April, direct from New York; took position first at Post No. 3, near the foot of St. Joseph street. Afterwards moved up to Post 26, where she was laden with cotton, and left for Liverpool on the 4th of June. On the morning of the 5th she was at the mouth of the river, where she was detained two days getting over the bar.

"On the morning of the 8th, she got outside, and the captain, Livermore, telegraphed Mr. Woodruff that 'he was quite sick, and had a doctor to see him.' In the evening Mr. W. replied by telegraph, that if he was much sick he had better return to the city, and let another master be sent to take charge of the ship. This message was not received, and the ship set sail. The next we hear of this vessel was through one that went into Galveston, the captain of which reported that he had spoken the ship Niagara, and was informed that '*the captain had died of yellow fever on the* 10*th of June, and two men on the* 17*th; one more case on board.*' This was about the 30th of June. Heard nothing of her since."

Now, whatever the connection between the ship and this patient may have been, it is evident that the vessel had not come from an *infected port*, nor been exposed to *infection* in any way. It will presently be shown that other cases originated in this neighborhood a short time afterwards.

May 22d. Case II. *On Third street, between Rousseau and Levee, 4th District or Lafayette.* (Fig. ii.) Dr. J. R. Zehender communicates the following to the Sanitary Commission. Has practiced medicine in the 4th District for the last twelve years; says he attended upwards of three hundred cases of yellow fever in the late epidemic.

Dr. Z. says the first well-marked case of yellow fever he saw this year, was at the time and place above-mentioned. The patient was a German, who had lived in the city more than a year; a cabinet-maker, of sober habits; told Dr. Z. he had not gone among newly-arrived emigrants, nor on board any ship, for six months previous to his attack. This patient had hæmorrhage from the gums and nose, turned yellow, and recovered very slowly.

Here we have a case that would appear to have originated on the spot.

May 23d. Cases III. and IV. *Ship Augusta, just above Josephine street, 4th. District.* (Fig. iii.) We are indebted to Dr. Schuppert, the attending physician of the Augusta and one of the visiting physicians of the Charity Hospital, for the notes of this case and others to follow. This locality is by the river,

nearly half a mile above the first given, and about a quarter of a mile below the second.

On the date above, Dr. Schuppert was called on board the ship Augusta, to see G. S——, a sailor, aged twenty-one, whom he found laboring under symptoms which he supposed indicated gastro-duodenitis; skin hot and dry, pulse 100, violent headache, pains in the back and limbs, tongue coated, breath fetid, nausea and vomiting of bilious matters. On the fifth day his skin and eyes turned quite yellow. He recovered, and was discharged on the fourteenth day.

Taken alone, some doubt might be entertained as to this being a genuine case of yellow fever; but in connection with others that occurred on the same ship, all difficulty vanishes. Let us now look to the facts connected with the ship Augusta.

This ship arrived here *direct from Bremen*, on the 17th day of May, and took position at the foot of Josephine street, in the 4th District. On inquiry, I learned that this ship brought over two hundred and thirty European emigrants, who enjoyed good health on the voyage; having only lost two children, who died of diarrhœa. The vessel was out fifty-two days, passed on the south of Cuba, but did not approach nearer than thirty-five or forty miles of that island. The emigrants arrived here in good health, remained but one day, and then proceeded to the West. The ship Augusta was brought up from the mouth of the river by the same tow-boat that brought up the Camboden Castle, a British ship, direct from Kingston, Jamaica. On the passage up the river there was free communication between the two ships across the tow-boat.

Having heard that there was a great deal of yellow fever at Kingston, and that the Camboden Castle had there lost her captain and several of her crew with that disease, I took occasion to call on the consignee, in company with Dr. Dalton. We there had the good fortune to meet with the captain of the vessel, who was just clearing her for departure, and politely gave us the following information relative to his vessel and yellow fever:—

Memorandum of ship Camboden Castle.

Captain Chaplin, of the ship Camboden Castle, says he entered on duty as captain of this vessel at Kingston, Jamaica, on the 1st of May last; the late captain, McDonald, having a

short time previously died there of *delirium tremens*, at *private lodgings;* says there was a great deal of yellow fever at that time among the shipping at Kingston, and the Camboden Castle had lost seven of her crew with that disease. This vessel had been in that port six or eight weeks—was last from Newport, Wales. Says he obtained seven new sailors to supply the places of those who had died; they were English and American, and he thinks they were unacclimated, though he cannot assert this positively. He sailed from Kingston, *in ballast*, for New Orleans, on the 2d day of May. Says that before leaving Kingston his vessel was *thoroughly cleansed* and *well sprinkled with chloride of lime*, to guard against the danger of sickness at sea. Says he arrived at the Balize on the 16th of May, and at New Orleans on the 17th; took position at Post 27 (which is in the upper part of the 1st District, nearly opposite Robin street). The ship Augusta was brought up the river by the same tow-boat that brought the Camboden Castle, one on each side; and there was free communication between the two ships, across the tow-boat. Captain Chaplin says, *there has been no case of fever on his vessel since he left Kingston, either at sea or since he has been here.* He is now loaded with cotton, and will leave this evening.

Given June the 8th, 1853.

This is all the connection that can be traced between the people on these two ships. After arriving at the city, they took position about *half a mile apart.*

Here again it would appear difficult to trace any thing like an *infectious* communication. The Camboden Castle, it is true, came from an infected port; but she was well cleaned before she left, had no case of yellow fever on the voyage, nor any as long as she remained here. And the passengers of the Augusta merely walked across her deck during the day they were coming up the river together.

Case IV. *Same date as above, and within a hundred yards of the ship Augusta.*

This was the first case of black vomit that occurred at the Charity Hospital; and although so early in the season, it excited my apprehensions for the future, and caused me to inquire whether anything of the kind had been witnessed by others. On the same day I found another case in my wards that bore a strong

resemblance to yellow fever. He died the following morning, of *congestion of the brain.* The body became slightly yellow, and a reddish fluid was found in the stomach; but it was not thought proper to pronounce the case *yellow fever.* I then commenced a scrutinizing investigation; and wherever *rumor* pointed to the existence of a case, I at once repaired to the spot, or sought the attending physician, for the purpose of getting authentic information. Now for the case:—

James McGuigan, an Irishman, aged twenty-six years, was admitted into the Hospital on the 27th of May; said he had been sick four days; was last from Liverpool. He was taken to one of my wards, but after I had paid my morning visit and left. At noon, the assistant house-surgeon, Dr. Canter, prescribed for him, thinking it a case of bilious fever, as he afterwards told me. Dr. C. saw him again in the evening, and did not then suspect he had yellow fever, nor did he think him dangerously sick. In the course of the night he became delirious; and early on the following morning it was discovered that he was throwing up black vomit freely: he died about 6 o'clock. Having been told these facts at my morning visit of the 28th, after finishing my prescriptions, I proceeded to the dead-house, for the purpose of making a postmortem examination. Drs. W. Stone, Choppin, McGibbon, and a number of others, were present.

Autopsy, four hours after death. Body muscular and rigid: face and neck slightly yellow; lower parts of neck and body livid. Lungs dark colored, but sound. Liver mottled; partly the color of mustard, and other portions like nutmeg. Gall-bladder nearly empty. Stomach distended with gas; contained, also, about four ounces of black vomit, like coffee-grounds; mucous membrane thickened and soft. Intestines contained dark pultaceous matters. Kidneys and spleen normal. Bladder contained urine. Brain greatly engorged; considerable effusion of serum under the membranes and in the ventricles.

No one who witnessed this examination expressed any doubt at the time that it was a case of yellow fever, and I so marked the ticket; but I understood that some doubts were afterwards expressed.

Let us now look to the previous history of this case; to ascertain which correctly, has cost me a great deal of trouble. When he first presented himself for admission into the Hospital, his case attracted so little attention that no special inquiry was made

about him. He reported himself to the clerk as having been in the city "one week," and last from Liverpool; but did not say on what vessel he had come. The clerk of the Hospital having some reason to suspect that he came on the ship Northampton, I at once sent to the Custom-House for the purpose of examining her list of passengers. The name of McGuigan was not found among them, and I therefore concluded he did not come over on that vessel. At that time I inquired for him in all quarters, but in vain. At length, however, the Sanitary Commission was appointed to investigate the origin of the epidemic; and before it went Mr. Parshley, a stevedore, who professed to know all about McGuigan, and gave quite a plausible account of his case. He said that McG. did come over on the ship Northampton, and that he became personally acquainted with him whilst engaged in discharging that vessel; he knew when he was taken sick and died. In short, he told the Commission quite a marvelous tale, about the bad sanitary condition of the Northampton at the time he discharged her. I had some reason to doubt the accuracy of this story; but on application to the consignees, I was gratified to learn that the Northampton was daily expected back to the city. She arrived here on the 11th of November; and on the 12th I obtained from the captain (Reed) the following memoranda of his voyage to this port last spring.

Captain Reed says, that on his voyage from Liverpool to New Orleans, last spring, he brought three hundred and fourteen emigrant passengers, and arrived here on the 10th of May; that he passed to the north of Cuba, not nearer than fifty miles, and having fine winds, he passed quite rapidly; that there was not much sickness on board; there were six deaths, four children and two adults; the former died of bowel complaints, one of the adults from hæmorrhage of the nose; says the emigrants all left his ship within three days after arriving here. Captain R. says his ship was in better order, as to cleanliness, when he arrived here, than most vessels; that on the voyage she was swept every day, washed three times a week, and fumigated twice a week with burning tar; says there was no occasion to use the two rooms called "the Hospital," as such, and they were filled with spare rigging, stores, &c.; says he left here for Liverpool with a load of cotton, on the 14th of June; that during his entire stay here he had but one case of fever on board his ship, and that was a boy, who was attacked on the 10th of June, and

was attended by Drs. Austin and Thorpe, who pronounced the case yellow fever. He recovered; that after leaving here on the 14th of June, his mate was attacked with yellow fever, and died on the 18th. The captain was attacked on the 20th, but very lightly, and was never confined to bed; says he had had yellow fever before in Havana; says he recollects the man James McGuigan; that he came over with him, in May last, as passenger, steward, or cook, and was numbered among the crew of the vessel; says he left the ship with the passengers, but thinks he went into the employ of Mr. Parshley, and was engaged in discharging her when he was taken with yellow fever; heard of his death before he left, in June.

Thus we have a full and minute account of James McGuigan, from beginning to end. From his own account, he must have been attacked on the very day that the first case occurred on board the ship Augusta. The two vessels laid not more than a hundred yards apart. McGuigan had been in the city one week the longest; but I do not think there can be much doubt that both of these cases contracted their disease in the locality where they were placed, and from the same remote cause. Mr. Clarke, a stevedore, testified before the Sanitary Commission (Oct. 17), that he loaded the Northampton about the 28th of May; observed no bad odor; says she had been cleaned; one of his men, Thos. Hart, was attacked and died of yellow fever at the Charity Hospital. *See Case No.* 10.

May 25th. Cases V. and VI. *Ship Augusta.* (Fig. iii.) Dr. Schuppert furnishes these cases:—

Case V. On the 25th of May, another sailor on the same ship was attacked with symptoms similar to the first, though more violent. He died on the 30th, in a state of delirium. Soon after death the body turned yellow, and there were ecchymoses in the dependent parts. No hæmorrhage before death. No post-mortem examination allowed.

Case VI. W. K., a butcher, aged twenty-six, had lived in New Orleans one year; resided on Chippewa street, 4th District, three squares from the river, and eleven squares above the ship Augusta (Fig. iv.); had no connection with this ship that could be ascertained; was taken sick on the 25th of May with high fever, severe pains in the head, back, and limbs, great thirst.

tongue coated, costiveness, etc., etc. Dr. S. had him copiously bled, and ordered an active cathartic. On the following day petechiæ appeared over the whole body, but chiefly on the extremities; hæmorrhage from the nose and gums, bowels torpid, skin and eyes slightly yellowish. Croton oil and strong enemata had to be used before the bowels could be moved. When they were opened, the evacuations were dark and very offensive. At the same time he vomited a large quantity of black matters. The bleeding from the gums continued for several days, and the skin became quite yellow. The hæmorrhage and petechiæ gradually disappeared, and he was discharged cured on the twelfth day.

Remarks. It may be doubted by some whether this was really a case of yellow fever; but it must be admitted that it presented some of the characteristic symptoms of that type of fever. Supposing such a case were seen in the midst of an epidemic; would any one hesitate about calling it yellow fever? The first cases that appear are generally more or less defective in what are considered characteristic symptoms; and hence the doubts and disputes that so often arise. Their true character is finally determined, in a great degree, by what follows.

May 27th. Cases VII. and VIII. *Ship Augusta.*

On this date, two more of the sailors on board the ship Augusta were attacked with the same symptoms. One of them recovered; the other, J. Woetle, was sent to the Charity Hospital, where he died on the 30th. He did not throw up black vomit. I witnessed the postmortem examination: body yellow, lower parts livid; stomach contained about two ounces of black vomit.

May 29th. Case IX. *On Gormley's Basin, extreme back part of the city, near the dividing-line between the 4th District and Fourth or Lafayette street.* (Fig. v.) This is a filthy pond, into which the waters of a number of streets in the 4th District are drained, and thence led into the swamp in the rear of the city by a narrow ditch. Dr. M. M. Dowler, to whom we are indebted for the following cases, says, "The canal and basin were originally about ten feet deep; but during the last eighteen years they have been constantly receiving the discharges from St. Andrew and other streets. None of the deposits hav-

ing ever been removed from the basin and canal, they have gradually filled up, till within the last three or four years the dregs of the whole area have begun to show themselves above the surface of the water. * * * * The appearance of the hot sun after a rain speedily covers the cauldron with a deep green mantle, which a few hours of solar action converts into an elevated black loam, etc. * * * To crown all, the whole district is occupied by a series of soap-factories and tanneries, which no precaution can prevent from exhaling an offensive odor, as stale animal matter is here the material operated upon." Dr. Dowler called the attention of the Sanitary Commission to this case, who investigated the matter minutely. The following is a brief statement of the facts:—

1. Johanes Kaien, a German, had lived in the city about twelve months; resided on Gormley's Basin; was employed getting shingles in *the Swamp*, where he went out to work very early in the morning, and came in late in the evening; *never went to the shipping*, and was a temperate man. Was taken sick on the 29th of May, and died with black vomit on the 2d of June.

2. Kaien's wife was attacked on the day after he died, and was buried the eighth day afterwards.

I learn from the records of the Sanitary Commission, that the next cases that occurred in this neighborhood were after the 1st of July. Dr. Ball testified that his first cases occurred in the first week in July, on Gormley's Basin; thinks these cases had no intercourse with the shipping; they were laborers who worked in the swamp—some were draymen.

Same date. Case X. John Allen, a Scotchman, aged twenty-four, had resided in the city two years, with the exception of two months last summer, spent on a trip to Boston. Never had yellow fever; was admitted into Ward 17 on the 4th of June, then sick seven days, and was discharged cured on the 12th. This young man was in one of my wards; and I had no hesitation in pronouncing the case yellow fever, the first time I saw him. He was in an advanced stage of the disease (eighth day), and presented the following symptoms: his skin was of a muddy, yellowish hue, hot and perspiring; eyes yellow; tongue natural; gums engorged and bleeding; head hot and painful; pulse 60; tenderness over the epigastrium; bowels constipated;

intellect somewhat clouded and confused; great thirst. He had been treated by Dr. Benedict before coming to the Hospital, and had been cupped and purged. I had a blister applied over the stomach, and gave him but little medicine; but had him carefully nursed. He recovered slowly, and was discharged on the 12th, as before stated.

I learn from Dr. Benedict that this young man slept at No. 17 Religious street, but worked on the Levee. He told me he was engaged for nine days, immediately before he was taken sick, in loading the ship Harvest Queen with cotton. This ship laid at Post 26, nearly opposite Robin street, in the upper part of the 1st District, and left here for Liverpool about the 31st of May.

P. S.—Nov. 18th. I learn from Dr. Benedict that Allen is still living, and has had no other attack of yellow fever this summer.

The ship Harvest Queen laid very near the Camboden Castle; but Allen said he had not been on board of the latter vessel. At first he gave a somewhat different statement, when his mind was confused; but when entirely relieved, he stated as above.

June 1st. Case XI. (Locality, fig. iii.) Thomas Hart, a robust young man, had lived in New Orleans eighteen months; entered the hospital, Ward 19 (Dr. Haile's), on the 5th of June, then sick four days; died on the 8th (morning).

Previous history. This man had been working on the Levee, and was last engaged in loading the ship Northampton, as was testified before the Sanitary Commission by Mr. Clarke, the stevedore. He slept in a filthy quarter.

Symptoms. Fever, headache, and pain in the abdomen, difficulty in passing urine, eyes injected, slight nausea, anorexia, gums swollen and red, skin hot, leaving a yellowish tinge when pressed with the finger, sense of fullness and uneasiness in the epigastrium, bowels costive, very restless, great thirst, etc. On the second day he was no better. On the third day he was much worse. He now presented slight hæmorrhage from the mouth and nose, eyes yellow, complained of intense pain in the hypochondriac region, hiccup in the evening, at night stupor, and death at 2 o'clock, A. M.

Autopsy at 9 o'clock, seven hours after death. External appearance. Body yellow and rigid, lower parts livid. Stomach

contained about an ounce of reddish fluid, mucous membrane very highly engorged and corrugated. Liver of mustard color, full and plump. Gall-bladder contained dark green bile; mucous membrane of small intestines engorged; large intestines normal. Brain highly engorged, not much effusion under the membranes. Kidneys large and soft. Bladder contained four ounces of urine. Spleen normal. Lungs much engorged; upper and posterior portion of right lung hepatized.

Some doubt was expressed by one or two physicians who witnessed the examination, as to whether this was a case of yellow fever; but for myself, I have no doubt on the matter.

June 3d. Case XII. *On Live Oak street, between Josephine and St. Andrew, 4th District.* (Fig. vi.) This was the second case seen by Dr. Zehender, and was a man who had been in the city three years. Never had yellow fever before. He had no hæmorrhage, but turned quite yellow on the fifth day. Recovered.

This is the date of Dr. Dowler's second case on Gormley's Basin, and also the following case at the Charity Hospital:—

Case XIII. Michael Mahoney, Irish laborer, aged sixteen, from Liverpool, four weeks on the ship Saxon; admitted into Hospital, Ward 19, Dr. Haile, June 6th, then sick three days; died on the 7th; body turned yellow; large quantity of black vomit, with sediment like coffee-grounds in the stomach; liver yellowish. This young man had not been able to find employment in the city, and was allowed to sleep on board the Saxon every night.

I called on the consignee of the ship Saxon, Mr. Giffney, and ascertained the following facts:—"The ship Saxon, Captain Crosby, from Liverpool *direct*, arrived at New Orleans on the 10th of May, after a long passage; brought Irish emigrants; took position at Post 27, in the immediate vicinity of the Camboden Castle. Has had no sickness on board since the vessel arrived here, excepting the case of the boy Mahoney."

June 5th. Case XIV. *On the corner of Dryades street and Triton Walk.* (Fig. vii.) Dr. A. J. Wedderburn communicated the following case to the Sanitary Commission, on the 5th of November. Says, "he was called to his first case of yellow

fever on the 5th of June, at the above locality. The subject was an Englishman, who had been in this country one year. Four brothers, a mother, and sister lived with him. Does not know whether the subject of this case had any communication with the shipping." Dr. W. says, "*A month afterwards* there were four or five cases in this house."

Notwithstanding the striking fact here furnished, it will be seen from Dr. W.'s testimony, which is to follow, that he believes firmly in the communicability of yellow fever.

Up to this period, we have given accounts of fourteen cases, which were pronounced yellow fever by those who attended them; but there was by no means a unanimity of opinion among all who saw them. The following unquestionable case put an end to all controversy. The skeptics all gave it up after seeing this.

Case XV. (Fig. viii.) Margaret Russell, an Irish girl, aged twenty-two, had lived in New Orleans six months; entered the Charity Hospital, Ward 36 (Dr. Robertson), June 10th, then sick six days, and died on the 11th, after turning yellow and throwing up large quantities of unmistakable, old-fashioned, coffee-grounds black vomit.

Previous history. Having learned that Margaret had lived with Mrs. Edwards, who keeps a boarding-house on Tchoupitoulas street, just above Race, I called upon Mrs. E. and ascertained the following particulars: Mrs. Edwards' residence is but one square from the river, and about equi-distant from the ship Augusta above, and the Camboden Castle below; perhaps a little nearer to the latter. Mrs. E. has had but few boarders lately; said that the last stevedore who boarded with her had left her house a week before Margaret Russell was taken sick; that no other person having any thing to do on the river had boarded with her for some time past; said that Margaret had lived with her for two months past; that she staid pretty closely at home, and never went to the river; that she was attacked with headache, fever, pains, etc., on Sunday, the 5th of June; had no idea it was yellow fever; gave her an emetic on Monday; other medicines on Tuesday and Wednesday; and finding her no better on Thursday, sent for a physician. On Friday, the 10th, she commenced throwing up black vomit, and was sent to the Charity Hospital.

Thus we have an unquestionable case of yellow fever, occurring in a servant girl, whose occupation confined her closely at home, and *who had not exposed herself to infection or contagion in any way whatever.* It must have originated in the place where she resided. Mrs. Edwards said there was no other case of fever in her house at the time these notes were made (June 13th).

About the same time that this girl was attacked, another case of black vomit occurred in the immediate vicinity. I am indebted to Dr. W. P. Sunderland for the facts, as follows:—

Case XVI. June 10th, Dr. Sunderland was called to see a young man, James Murray, at Mrs. Conroy's boarding-house, on Race street, near the corner of Tchoupitoulas. When he got there he found the patient dead but a few minutes. He saw a quantity of black vomit, which, he was told, the patient had been throwing or spitting up for six hours previous. The body was yellow. Dr. S. pronounced it yellow fever.

On the same day that I called to see Mrs. Edwards (June 13th), I likewise called on Mrs. Conroy, from whom, and the brother of the deceased, I obtained the following particulars of this case:—

James Murray, Irish laborer, aged twenty-five years, arrived here on the ship Rufus K. Page, about the 15th of April last, and went at once to board with his brother at Mrs. Conroy's. In a short time he found employment in Mr. Hadden's tobacco warehouse, on Hunter street, between Tchoupitoulas and Levee streets. P. Murray said his brother James was not much exposed to the sun in his employment, and was not in the habit of going on board ships; but that he had gone on one (name not recollected) the day before he was taken sick, Sunday. He thinks this ship had just arrived from Liverpool; and that James went on board under the expectation of meeting some old acquaintance from Ireland. He was attacked with fever on Monday morning, the 6th of June; was treated pretty boldly by the landlady, Mrs. Conroy, until the following Friday, June 10th, when he commenced throwing up black vomit. Mrs. C. not willing to trust her professional skill any further, now advised that a physician be called in. Dr. M. was first called, and afterwards Dr. Sunderland, who found the patient dead, as before stated. Immediately by the side of Mrs. Conroy's house

is a blind or closed alley that runs from Race street, parallel with Tchoupitoulas street, in the rear of the houses fronting on the latter, as far up as Mrs. Edwards' boarding-house, mentioned in the previous case; thus placing these two boarding-houses back to back, diagonally, with a filthy alley between. Mrs. Conroy informed me (and I noted it in her presence), that this alley was much neglected, and generally very filthy; that it had been cleaned but once in the last week or two. As we sat on the front steps talking, I observed a pile of stinking rubbish before the door and the alley.

Here we have another unquestionable case of yellow fever, apparently originating in the same locality; and it was in this neighborhood that the epidemic first prevailed among the resident population. But more of this anon. On the 17th of June, an Irish girl named Ellen Mullen was attacked with yellow fever in this house, and was sent to the Charity Hospital on the 20th, where she was cured, after a long and severe attack. About the middle of October, Patrick Murray, before mentioned, was attacked in Mrs. Conroy's house, and recovered.

Case XVII. On the same date as the foregoing, (June 6th), Dr. S. D. Campbell testifies to the Sanitary Commission, he saw his first case on Jacob street, in the back part of the city. The patient was a man of good habits, who had been in this country six months, led a quiet and retired life, had not been near the shipping nor exposed to infection in any manner. He died with black vomit on the 12th of June. For further particulars of this case, and subsequent ones in the same house, see *Abstract from the Minutes of the Sanitary Commission*, which will follow. The locality will be designated by fig. ix.

As I cannot make room for notes of all the cases that occurred from this time, I shall now only direct attention to other and different localities where the disease made its first appearance, long before it prevailed as an epidemic.

June 7th. Case XVIII. *At Algiers, across the river, four squares from the river, and about the same distance from the depot of the Opelousas Railroad.* (Fig. x.)

I went over to Algiers in person, and with the assistance of Dr. Dumont, a highly intelligent French physician, who resides here, ascertained the following facts relative to commencement

of the epidemic there. The very first case that occurred there having recovered, and being still on the spot, we obtained from him the facts now given.

Case. Anthony Howe, an intelligent Irish laborer, says he has lived in Algiers for the last three years, and never had yellow fever before. Says that for fifteen days before he was taken sick, he was engaged unloading the ship James Titcomb, of railroad iron. This ship had come direct from England, and was stationed at Slaughter-house Point, in Algiers. After working about a week on this vessel at the point mentioned, she was moved up to the steamship landing, in Lafayette, where Howe still worked on her three days, taking in ballast. She was then taken back to Slaughter-house Point, and Howe assisted in taking out the balance of the iron. On the 6th of June, having some business with a man in Jefferson city, which is above Lafayette, on this side of the river, he crossed over and walked up there and back, a distance of about two miles. In this walk he passed through the district where the first cases of yellow fever occurred. Says he was much fatigued by this walk through the hot sun. On the 7th, or the day following, he was attacked with a chill, soon followed by violent fever, pains in the head, back and limbs. Dr. Dumont was called in, and visited him some two or three times. At the time, Dr. D. did not think the case yellow fever; but now thinks it was, and the first case that occurred in Algiers. Howe says he was sick about fourteen days, had hæmorrhage from the nose, and became yellow. Not long after Howe was taken sick, his wife and child were attacked with fever; both recovered.

On the 26th of June, a man named Gill was attacked in a different room of the same house. Dr. Dumont was called to see him, but did not think it was yellow fever. Howe says he died without black vomit, but the body became quite yellow.

About the same time, Dr. Dumont says, a Swede living in the adjoining house was attacked with fever, and died; and very soon afterwards, in the next house, a Mrs. Nelson was attacked and died with black vomit. Three of her children were also attacked, and one of them died. Dr. Dumont says the disease then spread from that point throughout the entire village of Algiers, in a manner which, to him, appeared very much like the spread of *contagion* or *infection*. In his presence, however, I asked Howe whether his family had been visited during their

sickness by the neighbors; and he replied "*there had been hardly any communication.*"

Dr. Dumont tells me he has practiced medicine in Algiers since 1847; had yellow fever himself that year, and says the epidemic was very severe; has seen some cases of this disease every year since. Thinks it always prevails in Algiers when we have it in the city.

Dr. J. H. Lewis, who lives in the city, opposite Algiers, confirms this statement, with the addition that it is generally worse in Algiers than in New Orleans in proportion to population. Dr. Lewis has practiced in the neighborhood for the last fifteen years.

On the 25th and 29th of June, Eliza Lacey and Rose Turner, two Irish girls, who had lived in Algiers six and nine months, were admitted into the Charity Hospital with yellow fever—both from Algiers; and both died.

The facts here presented relative to the outbreak of the epidemic at Algiers show, as I believe, how it commenced; and to my mind it appears most probable that it originated spontaneously there, as it did in other parts of the city. But of this the reader may judge for himself. In the autumn, a police officer by the name of Holmes sent a communication to the Sanitary Commission, giving altogether a different account of it, but yet tracing its origin to the ship Titcomb, which he deemed *infected.* It is most evident he was not competent for the task he was performing.

We shall now point out another distinct locality where the epidemic broke out.

June 21st. *Dr G. T. Browning's cases near the U. S. Mint.* (Fig. xi.)

We are indebted to Dr. Browning for the following notes:

No. 1. On the 21st of June, Dr. B. was called to a man on Old Levee street, near Esplanade, and opposite the U. S. Mint. The subject was a German shoemaker, aged eighteen years, had lived in the city seven months, and was sick two or three days before Dr. B. saw him. Found him with hot fever, pains in the head, back, and limbs; irritable stomach; afterwards, slight hæmorrhage from the nose. He died on the morning of the 24th. Did not throw up black vomit, but the body turned quite yellow after death. No postmortem.

Nos. 2 and 3. On the day the above case died (June 24th), Dr. B. was called to two other cases of fever at a sailor's boarding-house in the immediate vicinity, both of which recovered without hæmorrhage or yellowness.

No. 4. A robust Irishman, unacclimated, residing in the same house as Nos. 2 and 3, was attacked with fever on Saturday, the 25th, and was taken to the Charity Hospital on Sunday morning, the 26th of June. Was admitted into Ward 25 (Dr. Meux), and died with black vomit on the 28th.

No. 5. June 27th, Dr. B. was called to a German shoemaker, aged 33, who lived next door to case No. 1; had been in the city six months—been sick five or six days before Dr. B. saw him. He died with black vomit on the night of the 28th.

Dr. Browning has since informed me that he recently, at my request, made more particular inquiry about cases Nos. 2 and 3, and ascertained that one of them was a sort of runner for the house, whose business it was to visit the shipping for the purpose of getting boarders. The other was a sailor, who had been going between the city and the West Indies for ten years past. They were both Germans.

Dr. B. further states that subsequently there were several other cases of yellow fever in this boarding-house, some of them fatal; but that *the first case in the neighborhood certainly occurred*, as before stated, *in the shoemaker, who was closely confined at home.*

We will mention one more separate and distinct locality where the fever broke out at this period; viz. *the back part of the 3d district*, formerly the third municipality. It is unpaved. (Fig. xii.)

Cases. On the 28th and 29th of June, a family of four persons, consisting of Mary Kelly and her sister, Mrs. Kelly, in the female wards, and Edward Kelly and his brother, a boy aged 15 years, were admitted into the Charity Hospital. They all died excepting the boy. This family had been in the city *five months*, and resided on Mandeville street, three squares below the Pontchartrain railroad, and six squares back from the river. The disease did not prevail epidemically in this region till late in July. On inquiry, I was not able to trace any sort of connection between these cases and any of the preceding.

Dr. Langenbecker, resident surgeon of the Luzenburg Hos-

pital, which is in the lower and back part of the city, informed me that the first cases he saw or heard of in that district occurred on *Victory street, between Desire and Elmyra streets, one square from the river, and in the lower extremity of the city.* (Fig. xiii.) The house was a large one, and crowded with German emigrants, who had come over in the spring of the year.

Dr. L. was called to the first case in this house on the 5th of July. It was the wife of a German tailor. She recovered. In a day or two her husband was attacked, and died with *black vomit.* A very short time after this, seven cases were attacked in one day, and then the disease spread throughout the neighborhood. Dr. Langenbecker says he has no doubt about the disease originating in the house first mentioned, *which was crowded and very filthy;* but thinks it was spread from there to the neighborhood around by *infection.* He knows of no communication whatever between the house mentioned and any previously infected spot or district.

The Physico-Medical Society.—At the regular meeting of the Physico-Medical Society, on the 2d of July, I stated most of the preceding facts as they had been noted at the time of occurrence. Several members mentioned having seen cases of yellow fever, in private practice, in the month of June.

Dr. Benedict said he had seen six cases—five of them in one house on Religious-street: "thought they were simple intermittent and remittent bilious fever at first; but some of them proved to be yellow fever, and died with black vomit. All that recovered turned yellow."

Dr. Lindsay said he had seen five or six cases of yellow fever in the same region.

Dr. McGibbon mentioned two cases he had seen in Lafayette: he thought one of them was yellow fever, but the other doubtful. They were young men residing in the same house on the corner of Bacchus and Fourth streets.

The late lamented Dr. D. Elliot Reynolds mentioned eighteen or twenty cases of fever that had occurred on the steamship Falcon, lying opposite Jackson Square. This ship had arrived here from Aspinwall, on the 20th of June—no sickness on board at that time. In a few days fever broke out amongst the crew, at first thought to be remittent bilious fever; but some of them

proved to be yellow fever. Two of these cases died of black vomit, under the care of Dr. Marmillon.

Having now traced the disease from its beginning, on the 15th of May, to the first days in July, through all the different localities where it first appeared, let us pause a moment and review the facts thus far presented.

There had been forty-seven deaths from yellow fever up to the 2d of July, as appears from the weekly reports from the cemeteries, which were published in the daily papers. About the same number of cases had been admitted into the Charity Hospital up to the 1st July. I have not given all the cases that occurred to this date, but have traced as carefully as I could the first cases in different localities, which are plainly designated on the accompanying map of the city by figures corresponding with the order of succession. Thus, fig. i. shows the locality of the first case; fig. ii. the second; and so on to fig. xii.*

The reader will please refer back to the cases for particulars. The localities designated circumscribe almost the entire outskirts of the city, at the same time dipping pretty far in; and it was from these different points, or their vicinities, that the disease continued to spread, though by no means with equal speed, as I shall presently show. It must be recollected that we are, as yet, only up to the first of July, when the disease was still prevailing *sporadically*. The *epidemic* was not declared until two or three weeks later. I put myself to considerable trouble to ascertain the foregoing facts, most of which were noted down at the time they occurred; and, I believe they are, in the main, correctly stated. I must at least think they are more authentic and minute than any that can be collected at this late day in relation to the commencement of the great epidemic. *Now, if any one can trace any sort of connection or communication between the first cases of the disease as they appeared in the different localities I have pointed out, or any thing like the gradual spread of an imported contagion or infection from one or more points to the region*

* Dr. Barton has prepared, with much labor, for the Sanitary Commission, a map of the city, divided into *twenty-six sanitary districts*, with a view to show the influence of *local causes* on the origin and extent of the epidemic. Into these districts he has traced the occurrence of upwards of 20,000 cases. The map is an interesting one, whether the facts presented prove the correctness of the doctor's peculiar views or not.

around, I can only say, it is more than I have been able, satisfactorily, to do.

It was currently reported, during the summer, that this fever was brought to us by vessels from Rio Janeiro. With the view of ascertaining what truth was in these reports, I called upon Mr. Lonsdale, one of the largest dealers in coffee, who could tell me all about the Rio vessels. Mr. L. said that nearly all the vessels that arrived here from Rio, after the 1st of April, had suffered more or less from yellow fever after leaving that port, but that none of them had brought cases to New Orleans. He could only make special mention of sickness on the following vessels:—

1. The ship Siri, Capt. Higgins, arrived here on the 10th of May, and took position at Post 13. The captain had lost his wife, son, and some of his crew, before leaving Rio, but had no sickness on the voyage, and none after arriving here. This position is about a mile below that of the Augusta and Northampton.

2. The ship Mary Kendall arrived here from Rio, on the 25th of June, via Jamaica, where she had to put in on account of distress from yellow fever: had left Rio on the 25th of January. Mr. L. thinks the captain had lost his wife and sister-in-law before leaving Rio. Brought no case to this port—there were plenty of cases here when she came.

It was reported that the ship Adelaide had brought from Rio the first cases of yellow fever that were seen here; but on careful inquiry I find that this ship has not been here this year at all.

Something was said about the fever having been brought here by the iron ship Evangeline. On inquiry, I found that this ship arrived here direct from Liverpool on the 10th of June, after we had had a number of cases.

I find the following interesting communication in the New Orleans Delta of the 17th of September:

YELLOW FEVER AT RIO JANEIRO.

A correspondent, who has been for a number of years a resident of Rio Janeiro, furnishes the "New York Commercial Advertiser" with the following interesting account of the yellow fever, as it has prevailed there, during the three last seasons:

"Frequent reference to the yellow fever of Rio de Janeiro having, of late, been made in the New Orleans prints and letters, to the effect that the fever now prevailing there was imported from Rio, giving the name of the vessel, and that it might have been prevented by quarantine regulations; also, 'that the fever, which was more malignant than ever known, was of a similar character as the

Rio fever, being something like the plague, the corpses after death having black spots on them'—thus leaving the inference that the Rio fever was the worst kind for virulence and extent, giving most erroneous opinions of the health of Rio, and creating a most unnecessary alarm. The undersigned being a resident of Rio, feels called upon to state a few facts in the case, that the public may be correctly informed, and judge of the propriety of renewing the antiquated notion of quarantine to prevent contagion, or feeling uncalled-for anxiety for friends who may be visiting Rio while the fever is prevailing.

"Prior to 1850, Rio was considered the most healthy tropical city in the world, no fatal epidemic having ever visited it; yellow fever and cholera were unknown. Early in February, 1850, some cases of fever occurred on board a vessel from Philadelphia, which terminated fatally with all the signs of yellow fever. Others were soon reported on board ship and on shore. It spread rapidly, so that in April, when it was at its height, the total number of deaths was from one hundred and sixty to one hundred and eighty per day. From 1st May it decreased, and in June it had nearly disappeared. The average of deaths while it prevailed, was fifty per day for four months, two-thirds being by the fever. The disease was not so virulent and rapid as it usually is in Havana; and with immediate and proper treatment, a large proportion recovered. The population of Rio Janeiro is about two hundred and fifty thousand; and the number of vessels in port was very large, many bound to California with passengers. Exposure and imprudence always increase the victims; and all know that none are more exposed than seamen, none more careless.

"The same fever pervaded the whole Brazilian coast in 1850. At Bahia it was traced to a vessel from New Orleans, and believed by many to have been imported in her. With equal propriety, it might have been said to have been imported into Rio from Philadelphia. Both would be absurdities, as the vessels left the United States in the winter season, and had no sickness on board till after their arrival.

"The epidemic was no doubt an atmospheric one, somewhat like the cholera. A malaria pervaded the whole coast; this was proved by several cases of fever appearing on board vessels from Europe prior to arrival. It was probably a visitation in lieu of the cholera, which has visited every part of the world except Brazil.

"The fever was confined exclusively to the city and suburbs. It did not spread into the interior, so that there was a safe and speedy retreat for all those who could leave the city.

"In 1851, there were a few sporadic cases, but it never could be called epidemic on shore. The cases on ship-board were more numerous; but, with proper care, they were not very fatal. The same remarks apply to 1852.

"The fever this year has been worse than in 1851 or 1852, having begun earlier than usual; but not nearly so bad as would be supposed by the reports published in the public prints. It is true that there have been some severe cases, but they were isolated ones, and exceptions.

"The true test are the bills of mortality, which are daily published, in the most particular manner, officially. Their correctness has never been doubted by those who know the city and the facts. I have carefully examined them, and collected the following results, which may be relied on as correct.

"*Average Daily Deaths at Rio, from Official Reports—Blacks and Slaves included.*

Jan.,	Yellow Fever,	5	Consumption,	7	Total, all diseases,		28
Feb.,	"	7	"	6	"	"	27
March,	"	5	"	6	"	"	26
April,	"	5	"	5	"	"	24
May,	"	4	"	5	"	"	20
Average of 5 months,		5 1-5		6			

"About five-eighths of the deaths by fever were in the hospitals, which are well arranged and managed. At the hospital appropriated to seamen, at Jurujuba Bay, by the published weekly reports, in May, the deaths were only 17 per cent. of the number entering, at that time about 50 per week. This was after a steamer was provided by the Board of Health to receive patients and take them to the hospital. The steamer was provided with beds, physician, and medicines, so that no time was lost in treating the disease. Previous to this, many were in the last stages before they were taken to the hospital, consequently many more deaths.

"By the bills of mortality examined, it appeared that the number of deaths of persons from 70 years and upwards (averaging 80½ years), were 3¼ per cent. of the whole number, when daily the average was twenty-five. The daily average at other seasons is under twenty. Three were 111, 115, and 118 years. Few, if any, cities can show a similar result.

"The number of deaths by consumption has increased very much of late years. This is frequently ascribed by the Brazilians to vaccination; as previous to its introduction, consumptive cases were very rare.

"The name of the vessel stated in the New Orleans print as having introduced the fever there from Rio, was the Adelaide. No vessel of this name can be found as having loaded at Rio for New Orleans, or to have arrived there.

G."

It is often referred to as a fact, that the first cases of yellow fever in this city *always occur among the shipping.* This is *not true,* as I have shown in my previous accounts of yellow fever in this city. In short, it is evident, from the facts within my knowledge, that the shipping has suffered much more than the city from the contact.

From the foregoing facts it will be seen that the disease steadily progressed with increasing speed from the time of its first appearance. If we had not an epidemic actually upon us at the period we have now reached (July 1st), there was certainly a strong probability that we soon should have one. But this was by no means a conceded point; on the contrary, there were all sorts of cavilings, disputes, and discussions in regard to it; and those who interpreted correctly the signs of the times, and foreseeing the impending danger, advised their friends who intended to

leave the city, to hasten their departure, were most soundly abused for their conduct. It were needless now to recount the unfortunate victims who were thus ensnared, from want of correct information and judicious advice. The city was actually without a Board of Health at the time, although the weekly reports from the cemeteries were published as formerly, under the direction of the Mayor and the late Secretary. This was all the *correct* information that was published, and even this was complained of by some who thought it better to *suppress the truth than cause a panic.*

We may now proceed in a more summary manner, noting only the more prominent incidents that occurred in the rapid progress of the disease. Although I have pointed out twelve different localities (some of them not far apart), where yellow fever cases first occurred, it is certainly true that the disease progressed most rapidly in the region where the very first cases were observed—I mean the region in the upper part of the city, bordering on the 1st and 2d districts, lying between Robin and Josephine streets, and extending as far from the river as Magazine-street. It was here that the disease first prevailed as an *epidemic*, which it did to a great extent before any cases originated in the center of the city, as I shall presently show. This region contains but two paved streets, viz.: Tchoupitoulas, running parallel with the river, and Felicity Road, running diagonally across; the former a great thoroughfare, the latter not. The streets in the rest of this extensive area are unpaved; the houses are, for the most part, of an inferior order, and are occupied chiefly by the Irish and Dutch. The waterworks fount, and a number of large cotton-presses and tobacco warehouses are in this region. But more of this when we come to take a general review of the ground over which the epidemic traveled.

We are now into the month of July; and I will proceed with my memoranda, as they were noted down in my diary. Throughout this month the weather was hot and wet—the unpaved streets very muddy.

July 2d. I note *eighteen deaths from yellow fever* at the Charity Hospital—the physicians in the upper part of the city were very busy, whilst those on and near Canal-street have but little to do. As yet, I hear of no cases among the better classes.

July 6th. Miss Pearsall, a highly respectable and accomplished young lady, died of yellow fever, on Coliseum Place.

The death of this young lady caused quite a panic, and hastened the departure of many from the city, who had intended to leave about this time. Mr. Pearsall, her father, left a few days after her death, was attacked on the river, and died of yellow fever at Natchez.

July 8th. Called to my first case in private practice, Miss B., on St. John Baptist street, near the water-works.

July 9th. Reports from the cemeteries show *fifty-nine deaths from yellow fever*, and *fourteen* from *other fevers*, for the week ending this date.

July 10th. Heard of the death of a hydropathic physician, Dr. Gray, on the corner of Girod and Carondelet streets.

July 13th. Deaths from yellow fever fifteen to twenty a day at the Charity Hospital; most of the cases come from the water-works region, a few from about the New Basin, some from Algiers and Claiborne-steeet. Dr. Beard told me he had two cases on Girod-street. The disease is approaching the heart of the city.

July 15th. The Howard Association come out in the papers, offering their benevolent services to the poor and afflicted; are complained of for doing so by some, who persist in saying *there is no epidemic, and will be none.* Four or five cases of yellow fever have originated recently within the Charity Hospital. This may be marked as the period when it might be said that yellow fever prevailed to the extent of an *epidemic*, though there was no Board of Health to publish such a declaration; and some persons, *even physicians*, still denied it most strenuously.

July 17th. Yellow fever increases rapidly. Interments for the week ending yesterday, *three hundred and forty-four;* of which *two hundred and four were from yellow fever;* nearly four times as many as the week previous. Nearly half of these deaths occurred at the Charity Hospital, where the mortality has been very great, owing chiefly to the late stage of the disease in which the patients enter; yet, it is undoubtedly a very malignant fever.

July 18th. The epidemic is coming into the heart of the city. I hear of cases at the St. Charles, Verandah, and City Hotels—two cases among the servants at the Orleans Club-room on St. Charles street. But, even as yet, the physicians in this part of the city have very few cases, some of them none.

July 23d. Interments for the week ending to-day, *six hundred and seventeen;* of which *four hundred and twenty-nine*

were from yellow fever. Still there are but few cases in the center of the city. The epidemic reigns chiefly in *the unpaved parts all around.*

About this period there were numerous calls in the newspapers for the organization of a Board of Health; City Councils busily employed with this matter.

August 2d. A Board of Health has been organized, and the papers of this morning contain its first *weekly* and *daily* reports. For the week ending July 31st, the interments were *eight hundred and eighty-four;* yellow fever, *six hundred and ninety-two.* Interments on the first day of August, *one hundred and forty-two;* of which *one hundred and twenty-three* were from yellow fever.

August 4th. The epidemic begins to rage in the central part of the city—Canal street.

August 6th. Col. Bliss, a distinguished officer in the United States Army, died of yellow fever at Pascagoula, on the Lake shore. He had not been in New Orleans for seventeen days when he was attacked. Left here on the 13th of July, and was attacked on the 30th. Dr. McCormick, Assistant Surgeon, U. S. A., tells me this, and says there was another fatal case at Pascagoula, in a man who had not been away from there at all. This man died a day or two before Col. Bliss.

August 7th. Weekly report of the Board of Health to this date shows *one thousand one hundred and eighty-eight deaths,* of which *nine hundred and fifty-nine* were from yellow fever, and twenty-nine of other types of fevers, such as "pernicious," "malignant," "congestive," "intermittent," "typhus," "typhoid," etc. The prevalence of these various types of fever with yellow fever, will be more distinctly pointed out in the statistics that will follow.

August 15th. I find the following summary of the work of death in one of the city papers:

A correct report of the interments in all the cemeteries of the city for each day in the month of August, to the 14th of said month:

	Total.	Yel. Fev.	Other Dis.	Not stated.
August 1,	142	106	25	11
" 2,	135	115	14	6
" 3,	146	124	17	5
" 4,	166	135	15	16
" 5,	150	128	9	13
" 6,	238	194	30	14

	Total.	Yel. Fev.	Other Dis.	Not stated.
August 7,	209–1186	165–967	40–150	4–69
" 8,	219	187	23	9
" 9,	201	166	21	14
" 10,	230	193	33	4
" 11,	223	192	13	18
" 12,	207	180	25	2
" 13,	214	179	22	13
" 14,	232–1526	191–1288	26–163	15–75
Total,	2712	2255	313	144

J. C. SIMONDS, M. D.,
Secretary of the Board of Health.

At this period the epidemic rages most awfully; the public consternation and distress are indescribable.

On the 18th, the Mayor of the city, under the advice of the Board of Health, ordered rounds of cannon to be fired in various quarters of the city, at sunset every day, and barrels of tar to be burnt at nightfall all over the city. The firing of cannon was soon discontinued on account of its injurious effect on the sick, but the *tar-fires* were kept up for a considerable time.

August 21st. I cannot do better than insert here some extracts from a summary review of the epidemic, up to this date, from the Picayune:

THE EPIDEMIC.

CEMETERIES—HOSPITAL—REMARKS.

The interments in all the cemeteries of the city, for the week ending at six o'clock yesterday morning, Saturday, the 20th instant, are in detail as follows, the deaths by yellow fever being those certified to by the physicians.

Interments for the twenty-four hours ending at 6, A. M., on—

		Total.	Yellow Fever.
Sunday,	August 14,	232	191
Monday,	" 15,	213	182
Tuesday,	" 16,	193	163
Wednesday,	" 17,	219	191
Thursday,	" 18,	219	188
Friday,	" 19,	234	203
Saturday,	" 20,	224	184
	Total,	1534	1302

During this week the cases of deaths reported for causes unknown number seventy-four. At least sixty-three of these were yellow fever deaths, which, added to the total above, would give one thousand three hundred and sixty-five deaths by yellow fever for the week ending at 6, A. M. on the 20th instant.

The interments for the three weeks ending yesterday are as follows:
Week ending at 6, A. M., on—

	Total.	Yellow Fever.
Saturday, August 6,	1134	996
" " 13,	1494	1308
" " 20,	1534	1365
Total,	4162	3669

In our weekly reports, heretofore, we took no account, as we have now done, of the proportion of yellow fever cases in those interments reported daily as from unknown or not stated causes. The slight increase in the totals of yellow fever interments, as given in the above table, is owing to the addition of this proportion.

This table shows an increase, for the week ending at 6, P. M. yesterday, over the previous week, of forty in the total of interments, and of fifty-seven in those by yellow fever. This increase compares favorably (if such a word can be used in connection with such a subject), with that of the second week in the table over the first. The increase there was three hundred for total interments, and three hundred and twelve for those of fever.

But if the increase for the week ending yesterday is not so decided, it must be considered that the proportion of mortality to the population is greater than it was even a week ago. How long this is to continue, it is not for human authority to say, except that experience tells us that the first frost will, without doubt, cut short the career of the epidemic. We do not well see how its severity is to last much longer, for there must be few unacclimated persons left to undergo its power.

We follow out the same form of returns, and comparisons between them, for the reports from the Charity Hospital. These are made up to midnight of each day. Our weekly report consequently ends at midnight on Friday, the 19th instant.

Report of the hospital for the twenty-four hours ending at midnight on—

	Admissions.	Deaths.	Yellow Fever.
Saturday, August 13,	69	42	33
Sunday, " 14,	72	40	35
Monday, " 15,	87	47	46
Tuesday, " 16,	61	39	34
Wednesday, " 17,	66	35	33
Thursday, " 18,	74	28	24
Friday, " 19,	59	41	39
Total,	498	272	244

The report for the week previous, ending on the 12th instant, gave 594 admissions, 282 deaths, and 266 by yellow fever.

For the week ending on the 5th instant, the admissions were 542, the deaths 304, and those by yellow fever 296.

The totals of the hospital reports for the three weeks ending at midnight on Friday, the 12th instant, are as follows:

	Admissions.	Deaths.	Yellow Fever.
Friday, July 29,	570	218	207
" August 5,	547	318	307
" " 12,	594	282	266
" " 19,	498	272	244
Total,	2209	1090	1024

The decrease in the admissions and deaths at the Charity Hospital, for the week ending at midnight last Thursday, is to be attributed, for the most part, to a large portion of its class of patients seeking relief at the four city infirmaries and other hospitals.

The mortality reports of the Charity Hospital, as compared with those of the city exclusively, are, for the last three weeks, as follows:

	Total Deaths.		Yellow Fever.	
	City.	Hospital.	City.	Hospital.
Week ending August 6,	816	318	689	307
" " 13,	1212	282	1042	266
" " 20,	1262	272	1121	244
Total,	3290	872	2852	817

The Howard Association, having received ample funds from the generous people of New York, Baltimore, Philadelphia, Washington, Savannah, Baton Rouge, Natchez, and various parties in and near this State, are opening four new infirmaries for the indigent sick, and one especially designed for convalescents. Baton Rouge has also sent a deputation of her citizens to assist the Howard Association in waiting on the sick. This is indeed an act of benevolence that the good Samaritan might envy.

The Mayor, Council Committee, and Board of Health, exert themselves unremittingly in the discharge of their responsible and difficult duties. They have the cemeteries in excellent order, and for the last few evenings have had cannon fired and tar burned as an experiment to purify the atmosphere.

Many objections being made to the firing of cannon, as injurious to the sick, that measure was stopped by the Mayor's order, and he yesterday issued a notification to the citizens, to the effect that coal-tar will be placed at accessible points throughout the city, and all persons are requested to get as much of it as they wish, and burn it in their yards and about their premises morning and evening.

August 28th. *Greatest Mortality.*—The week ending on yesterday displays the highest mortality of the epidemic. From this period its ravages decreased; at first slowly, but in a short time very rapidly, as will hereafter be shown. I again extract from the carefully made summaries of the Picayune of this date:—

THE EPIDEMIC.

CEMETERIES—HOSPITALS—REMARKS.

The interments in all the cemeteries of the city for the week ending at 6 o'clock yesterday morning, Saturday, 27th inst., are in detail as follows:—

Interments for the twenty-four hours ending at 6, A. M., on—

		Total.	Yel. Fever.
Sunday,	August 21,	269	230
Monday,	" 22,	283	239
Tuesday,	" 23,	258	220
Wednesday,	" 24,	222	188
Thursday,	" 25,	218	186
Friday,	" 26,	193	151
Saturday,	" 27,	185	151
Total,		1,628	1,365

Of the total interments, 90 were cases where the doctor's certificate did not state the cause of death. Of these, at least 77 were yellow fever cases, making the deaths by yellow fever for the week, 1,442.

* * * * * * * * *

The returns for the fourteen weeks ending yesterday at 6, A. M., since the first yellow fever death took place, are as follows:—

Week ending on Saturday—

	Total.	Yel. Fever.
May 28,	140	1
June, 4,	142	1
June 11,	154	4
June 18,	147	7
June 25,	167	9
July 2,	177	25
July 9,	188	59
July 16,	344	204
July, 23,	617	429
July 30,	723	555
Aug. 6,	1,134	947
Aug. 13,	1,494	1,262
Aug. 20,	1,534	1,302
Aug. 27,	1,628	1,365
Total,	8,589	6,170

The cases in which the doctor's certificate did not give the cause of death, were as reported by the Board of Health for the last five weeks, in the preceding table, to the number of 279. Of these, at least six-sevenths were yellow fever cases, giving 239 for that class of disease out of the 279. These, added to 6,170 at the foot of the general table above, show that in the four districts of this city,

from May 28 to August 27—or within a day of three months—6,449 human beings have died of yellow fever.

It would be an interesting statistical fact for the Board of Health to inquire into, how many children and grown persons, born here, have died of the fever? how many have had the fever twice? how many colored persons have died of it? We know of a number of children born here, under the age of ten years, who have died of the fever; we know positively of one case, and have heard of a good many, where the person attacked had already had the fever here; we know of negroes who have had the fever and died of it; and we know, too, of a number of persons who have lived here through several epidemics, some of whom have been attacked this year, and others have escaped it altogether.

I can testify to the facts specified by the Picayune.

September 1. A pleasant day; hard shower early in the morning. The epidemic is declining rapidly; deaths from it now only amounting to about one hundred a day.

September 2. This day is appointed by the Mayor of the city as one of fasting and prayer.

Yellow fever is now prevailing at Mobile, Natchez, Vicksburg, Woodville, and Thibodauxville. The latter place is a small village situated on Bayou Lafourche, in this State. The following extract is from one of our city papers:—

YELLOW FEVER AT THIBODAUXVILLE.—The following endorsement was written on the mail-bill from Thibodaux, September 2, which arrived here yesterday: "Stores closed—town abandoned—151 cases of yellow fever—22 deaths—postmaster absent—clerks all down with the fever.

"Respectfully, J. C. WHITE, Ed. of Minerva."

YELLOW FEVER IN MOBILE.—The interments in Mobile on the 31st ult., were 27, of which 22 were yellow fever. On the 1st inst. the number reached 32, of which 23 were of yellow fever. On the 2d inst. the interments were 43, of which 37 were from yellow fever.

September 7th. Only forty-eight deaths from yellow fever to-day.

September 17th. The deaths from yellow fever have now fallen to twenty-four a day; for the last week, two hundred and twenty-one. All the infirmaries of the Howard Association have been closed, excepting one, which is still kept open for convalescents. In fact, the *epidemic is now over*, though this is not yet announced by *authority;* and we may expect to see *sporadic* cases till the end of the year.

On the 20th September, having little or nothing to do at

home, I made a visit to my friends in Mississippi, when I saw something of the yellow fever of Vicksburg and Jackson. I returned to New Orleans on the 7th of October, and found the city *uncommonly healthy*. Went up to the Charity Hospital on the 8th, and found ten wards closed for want of patients; yet I saw a few cases of yellow fever there.

October 8th. The mortality for the week ending this day, was one hundred and thirty-three, of which forty-two died of yellow fever; and of these, thirty-six died at the Charity Hospital; consisting chiefly of laborers and others, who had recently come to the city.

The following extract is from the last weekly summary of the epidemic that appeared in the Picayune:—

The following is a table of the total interments, and of those by yellow fever only, which were certified to by the physicians, from the week the first yellow fever case was reported as terminating fatally, up to 6, A. M. yesterday morning:—

Week ending on Saturday, at 6, A. M.—

	Total.	Yellow Fever.
May 28,	140	1
June 4,	142	1
June 11,	154	4
June 18,	147	7
June 25,	167	9
July 2,	177	25
July 9,	188	59
July 16,	344	204
July 23,	617	429
July 30,	723	555
Aug. 6,	1,134	947
Aug. 13,	1,494	1,262
Aug. 20,	1,534	1,302
Aug. 27,	1,628	1,365
Sept 3,	955	749
Sept. 10,	576	421
Sept. 17,	365	221
Sept. 24,	263	125
Oct. 1,	219	85
Oct. 8,	133	42
Total,	11,100	7,813

Cases in which causes of death were not stated in the last ten weeks of this table, ... 450

Of these six-sevenths for yellow fever, ... 385

Total of deaths by the fever since May 28, ... 8,198

October 13th. The Board of Health announce publicly that "*there is now no epidemic in the city, and that absentees and*

strangers may come in with safety." This announcement was welcomed with joy, and from this time people rushed in from all quarters. A few were attacked after their arrival here, but not severely; the malignancy of the fever having been greatly mitigated.

I stated, in my memorandum of the 17th September, that I considered the epidemic was really over then, although there was no public announcement to that effect. My opinion was based, not *alone* upon the great diminution of cases, but also upon *the change of type* that was visible in the new cases then occurring. Fevers of the *pernicious*, intermittent and remittent types became more common than yellow fever. In fact, the yellow fever type was gradually giving place to the remittent and intermittent, as will appear plainly in the statistics to follow. This is what always occurs, as I have completely demonstrated in my previous writings on the subject.

The number of deaths from yellow fever, for the week ending September 17th, was two hundred and twenty-one. Now, if we refer to the period when the deaths first got up to a similar amount, we shall find that it was the week terminating the 16th of July, when the deaths were two hundred and four. Thus, we have *two months* as the period during which it may be said *yellow fever prevailed as an epidemic.* This again corresponds with the observations of the past. We have more or less yellow fever in this city *every year;* but, after a constant residence here of twelve years, I must say I have never known it prevail *to an epidemical extent* for a longer period than *sixty or seventy days.* Some persons attempt to draw a distinction between *epidemic* and *sporadic* yellow fever; but this is *sheer nonsense.* If there be such a disease as yellow fever at all, you may see as *genuine a case* of it in a season when not more than a dozen of the kind occur, as in one presenting thousands of cases.

A *popular error* of extensive prevalence and long standing respecting yellow fever is, *that an epidemic can alone be extinguished by frost.* I demonstrated this to be an error in my histories of the epidemics of 1847 and '48; and the events of the present year fully confirm my previous observations. In 1847, the epidemic ceased long before the appearance of frost; yet sporadic cases were seen to a considerable extent till the end of the year. On the present occasion, the disappearance of the epidemic was published by the Board of Health on the 13th of

October, while the *first frost* was announced on the 25th of October; and that was only observed on the outskirts of the city. On the 31st, there was a much heavier frost; but by this time a large number of persons had returned to the city. It is true that some of them were attacked with the fever, as before stated; but the cases were generally mild, and easily managed. We shall, doubtless, continue to see scattering cases till the end of the year. The general remote cause of all the endemic fevers seen here, which, in its most virulent or powerful state, produces an epidemic of yellow fever, gradually undergoes modification in the progress of time; it becomes less virulent or powerful, and in proportion to the degree of this change, will it produce the milder types of fever. This position is illustrated by the remark of a highly intelligent practitioner of the 4th District, whom I met about the 10th of October. On being asked whether he saw much yellow fever at that time, he replied that "he saw a good deal of fever, but he hardly knew whether it was *yellow fever* or not." I asked him how the cases looked, if they became *dangerously ill or died?* He said "they then generally looked *precisely like yellow fever.*" Another professional friend in the same district told me a short time afterwards, that he had just been astonished at seeing a case of intermittent fever terminate in *fatal black vomit.* Such observations show that the prevailing *fever-cause*, which in August produced yellow fever in nine-tenths of the cases that occurred, had become so much weakened in October as to produce mostly the *remittent and intermittent types;* yet the relationship between them was still so close, that if the latter were not promptly cured, they ultimately presented the worst features of the former.

The disease first prevailed to an *epidemical extent* in the region bordering on the junction of the 1st and 4th Districts, extending from the river back and around the *Water Works*, as I have more distinctly shown in the foregoing memoranda. It was shown that it also broke out in various other places quite remote from each other, and having no special or marked intercommunication. It is worthy of particular notice, that the *epidemic prevailed in the unpaved, and, of course, least improved parts of the city all around, long before it did in the central and best improved parts.* It is well known that the epidemic was not so bad this year on Chartres, Royal, Burgundy, Customhouse, Bienville, Conti, and St. Louis streets, as it was in 1847. Thirty

years ago this region bore the chief brunt of the epidemics. This doubtless arises, in a great measure, from the fact that there are fewer unacclimated people in this region than in those so severely scourged at this day.

From this city, which was the starting point, the epidemic influence gradually expanded until it ultimately spread over a more extensive region around than was ever known before. Along the Mississippi river it extended from the Balize up to the mouth of the Arkansas, where the village of Napoleon was severely scourged. On Red river it went as high as Shreeveport; on the Alabama river to Montgomery, the capitol of the State; on the Tombigbee, as high as Demopolis. It extended to Pensacola, in Florida; to Galveston, Houston, Indianola, Victoria, and other places in Texas. It prevailed terrifically in the village of Thibodauxville, on Bayou Lafourche, and also in some of the towns over in Attakapas. But let us get through with the epidemic in this city before adverting to its ravages in other places.

THE GENERAL CHARACTER OF THE DISEASE.

It seems to be generally conceded that the yellow fever of this year has been more malignant and unmanageable than any ever seen here before. Such at least is the opinion of the oldest practitioners with whom I have conversed, and I am quite confident it is true as far back as 1841.

The tendency to black vomit was more rapid, and there were more cases of this than usual. At the same time there were more *recoveries* from black vomit than ever before known. This will be more particularly noticed under the head of *special observations.*

I think that *head-symptoms* were unusually severe and dangerous. Many died in delirium and convulsions.

I think that *suppression of urine* was much less frequently observed in dangerous cases than formerly.

Hæmorrhages were exceedingly common, and often fatal. Many died of hæmorrhage from the nose, gums and bowels. Drs. Kennedy and Henderson told me of a very clever young man who died of hæmorrhage from the scrotum. Hæmorrhage, however, was not always an unfavorable symptom; on the contrary, it often indicated the approach of a *salutary crisis.* Indeed, it is *the natural crisis of this type of fever when its course is not interrupted*

by art. How often have I hailed with joy the appearance of a moderate hæmorrhage from some *safe part*, as the nose, gums or uterus, in the critical stage of yellow fever, when it had been previously altogether uncertain how the case would terminate! At this stage of the disease, a small quantity of blood flowing spontaneously from any part except the *stomach* is most generally followed by the happiest effects, reducing any remaining febrile excitement and allaying nervous inquietude. When hæmorrhage sets in, however, there's no telling how far it may go. Believing as I do that it is a *natural critical discharge in this type of fever*, I would recommend that no efforts be made to check it whilst it is *within the bounds of safety;* but when it seems to threaten life, we should then resort to astringents, styptics, stimulants, and tonics.

Black vomit is nothing but a hæmorrhage from the stomach, which may exist in any degree, from a few particles of blood mixed, as it were, into a quantity of light glairy fluid, presenting the appearance of floating dark specs or flocculi, to that of a rapid and profuse discharge of *pure red blood.* Before this discharge takes place, there is great engorgement of the mucous membrane lining the stomach. The hæmorrhage that then occurs is the effort of nature to relieve this engorgement; consequently, if the patient dies without throwing up much black vomit, we find the mucous membrane greatly engorged, thickened, and red or livid; whereas, if the hæmorrhage had been *very profuse*, we find the mucous membrane after death pale and softened. Hence we may explain a fact that has been observed by many, viz., that *recovery is more apt to take place after free discharges of black vomit* than after *very slight.* The reason is obvious: in one instance nature effectually relieves the distressed organ by directly depleting its morbidly engorged blood-vessels; whilst in the other there is not a sufficient discharge to afford any relief.

When a patient is threatened with black vomit, the great indication is, to remove that engorgement of the blood-vessels of the stomach which is its proximate cause; but of this I shall speak more fully when I come to the subject of *treatment.*

Discharges of precisely the same nature as black vomit take place from the mucous membrane of the *bowels*, presenting the same shades of color, from a brown to a deep black, and onward to *pure blood*, according to the activity of the hæmorrhage. This is an enlarged view of the true nature of black vomit, without

being restricted to any *particular appearance* as alone characteristic of that discharge. If such a view had been taken by the intelligent physicians who saw the first cases that died of yellow fever at the Charity Hospital this year, we should not have had so much discussion as to whether the fluid found in the stomach was *too black* or *not black enough*, *too red* or *not red enough*, &c., to be *genuine black vomit.* If this term is to be restricted to *any special appearance* of the matters ejected from the stomach in fatal cases of yellow fever, I will venture to assert, that it cannot be shown in *a fifth part* of the cases. On the contrary, if it be used to designate *that critical hæmorrhage* from the stomach and bowels, of all shades and degrees, so often met with in fatal cases of yellow fever, then might we even go so far as to speak of a *white vomit.* The rice-water discharges of Asiatic cholera are admitted to be "*white hæmorrhages;*" and Sir Henry Marsh, of Dublin, calls some dropsical effusions "*white hæmorrhages;*" then why may we not have a whitish discharge from the stomach in yellow fever, that is almost equivalent to the celebrated black vomit? In fact, *we do;* and I have often heard the remark made by physicians of the first respectability.*

Black vomit and other hæmorrhages rarely occur amongst full-blooded negroes, though I have heard of a number of cases this year, and seen one myself. Mulattoes and quadroons are almost as liable to them in yellow fever as white people, and quite a number have died of hæmorrhages this year. This difference between the black and mulatto must proceed from the mixture of races.

* Since making these remarks last fall, in my History of the Epidemic at New Orleans, I have had the pleasure of reading Dr. Blair's recent and valuable work on *The Yellow Fever of British Guiana*, in which I find the following remarks:—"The white, ropy, acid fluid, which is frequently ejected at the close of the second stage, in considerable quantities, and with much relief to the symptoms, is generally attended with considerable retching. This is the fluid which, during our epidemic, was called 'premonitory' or 'precursory' fluid, or '*white vomit.*'" (p. 80, 3d edition.)

And again (page 82),—"As some time elapsed before the precursory or *white vomit* was distinctly recognized as a symptom of the malady, the number of cases in which it occurred is no doubt understated from the case books. It is shown, however, as might be expected, to occur oftener than black vomit. * * * * Black vomit generally followed the precursory vomit, but many cases of death have occurred after the latter only."

In the *American Journal of the Medical Sciences*, for April, 1854, may be found an admirable paper on *black vomit* by Dr. La Roche, of Philadelphia. This paper contains the most correct views of the *nature and composition* of this discharge, fortified by extensive researches into the writings of authors on yellow fever.

Black vomit is quite common amongst white children with yellow fever, but they are far more apt to recover from it than adults. I shall say more of this in another place.

Black vomit is by no means *restricted to yellow fever*, but is occasionally met with in other diseases, such as dysentery, cancer of the stomach, and the state of pregnancy.

There were various rumors afloat that this was not *genuine yellow fever*, or such as has generally prevailed here before, but something altogether different; some saying it was a "*modified typhus*," others that it was "a species of *plague*," whilst others again called it the "*African fever*." For myself, I saw no just grounds for any such distinctions. Whatever typhoid symptoms it presented, are common in *prolonged cases* of yellow fever. I saw nothing at all resembling the descriptions of *plague;* and as for "*African fever*," I would like to know what is meant by the term. There is no part of Africa where so malignant a fever is generated as the yellow fever of America; and those who assert that this was an African fever, ought not only to point out its *distinguishing features*, but also show how it was introduced here. The truth is, the epidemic was nothing but an uncommonly malignant yellow fever, presenting all the characteristic symptoms of that disease as it is generally seen here, but in a more virulent degree. No two epidemics that ever occurred here were precisely alike, but each differed from the other, and required some slight modifications of treatment.

I deem it useless to give a general description of the symptoms of yellow fever, as they are to be found in all the works on the subject, though in the main they give a very imperfect idea of the disease. The general impression derived from reading descriptions of yellow fever is, that it is *a violent fever of a single paroxysm, lasting about seventy-two hours, and presenting strongly marked characteristic symptoms, by which it may readily be distinguished from all other types of fever.* I have not found it so: nor have I yet found the man who could always say correctly whether a case, examined *per se*, was yellow fever or not. I have already shown what differences of opinion were expressed about the first cases that appeared this year, and have only to add, that the same thing occurs here every year. The truth is, yellow fever is so closely allied to remittent and intermittent fevers, that no uniform and reliable distinction can be drawn between them in the early stages, and the only way we get at the fact that yellow

fever is prevailing, is by observing the *final results*, whether in *death* or *convalescence;* and the former is by far the most conclusive of the two. Even in such an epidemic as this, thousands of cases occurred which no one would have thought of calling yellow fever, if it had not been generally known that many of the same character and appearance had terminated in fatal black vomit.

I need not say anything more about the general character of the disease this year, save that it presented every variety of aspect and type ever seen in yellow fever, from the mildest attack to the most violent, and showed such a tendency to death amongst *whites* who were for the first time exposed to it, as to demand the most prompt and judicious treatment.

On reflection, there is one other feature of this epidemic which is worthy of mention, and that is, *a tendency to relapse*, which presented itself in many instances. After the customary subsidence of the fever, at the end of the third day, there would be a period of calmness lasting from twenty-four to forty-eight hours, and then the fever would kindle up again, and last for one day or more. This secondary fever was often very dangerous, though it frequently terminated happily. The interval of convalescence after the first attack was sometimes so long, as to appear more like a *second attack* than a *relapse*. From two to four weeks have been known to elapse between two distinct attacks of the fever in the same person. Heretofore these relapses, or second attacks were not at all common. On the 4th of November I was called on board a steamboat, to see a gentleman who had just come down from the village of Warrentown, situated on the river just below Vicksburg, where the yellow fever had been very bad. He said this was the fourth attack or relapse he had suffered since July. He died of black vomit on the 8th.

The testimony before the sanitary commission, an abstract of which will presently follow, furnishes additional facts touching all these points.

SPECIAL OBSERVATIONS.

Under this head I shall notice some particular points, such as *recoveries from black vomit*, *second attacks* of yellow fever, attacks upon *creoles* or natives, and attacks upon *negroes*.

1. *Recoveries from black vomit.*—When *well-marked black vomit* is presented in a case of yellow fever, I consider the chance

of recovery as but little better than *one in a hundred;* yet I shall be able to show quite a respectable number of recoveries from this desperate condition this year. I had two in my private practice, and several in my wards at the Charity hospital. One of my private cases was a little Irish girl, aged about eight years; the other was a *black negro woman.* One of my cases at the hospital was a young Spaniard, whom I shall mention more particularly under the head of *treatment.* I also saw a mulatto boy, patient of Dr. Hester, who threw up black vomit copiously during twenty-four hours, and recovered. The youngest subject of black vomit I ever saw, was a white infant aged *five weeks,* who was born after the epidemic broke out. It died, as did also the mother, who was unacclimated.

Dr. Boyer, resident surgeon of the *Maison de Sainté,* informs me that there were *fifteen* recoveries from black vomit in that institution. Prof. Jones says he had *two* recoveries in private practice, and *eight* or *ten* at the Charity hospital.

Dr. McKelvey says he had three recoveries in private practice, and some at the Charity hospital.

Dr. Lindsay informs me he had six or seven recoveries from black vomit.

Dr. M. M. Dowler says he had four recoveries from black vomit—two women, one man, and one child six years of age. Dr. D. never knew adults to recover from black vomit before, but has known several children.

Dr. Wedderburn says he had four or five recoveries from black vomit.

Dr. Rushton says he had two cases to recover from black vomit.

Dr. Choppin, House Surgeon of the Charity hospital, gives it as his opinion that *seven per cent.* of the cases of black vomit in that institution recovered.

Notwithstanding all this testimony to the fact of recovery from black vomit, one of the most prominent physicians of the city, who has practiced here near twenty years, tells me he never knew a case of *unquestionable black vomit* in yellow fever get well.

I have only mentioned the names of such of my professional friends as I happened to meet with, whilst taking down these special observations. It will be the same with those to follow. I might enlarge them to any extent if I had time and space.

2. *Second attacks of yellow fever.*—I mean by this, persons

who have had the disease in former years. In my history of the epidemic of 1847, I mentioned that several instances of this were observed, and the same has occurred this year. There can be no doubt that if a person have a plain attack of yellow fever during the prevalence of a *severe* epidemic, there will be but small probability of his ever having it again, provided he remains in the same place; yet the rule is by no means *invariable*, as I shall presently show. If one has it, however, during a *mild* epidemic, or when there are only a few sporadic cases, his subsequent exemption will not be near so great. Thus there were numerous attacks this year among persons who had had other attacks since 1847, but not many among those who had it that year, or any previous *strong* epidemic. I am satisfied that the correct doctrine on this point is laid down in my "Report on the Fevers of New Orleans." (*See Southern Medical Reports, vol.* 1.)

I saw no case this year which had been attacked in 1847, but several who had the disease well-marked in 1848 and subsequently.

Dr. Jones informs me that he saw one case this year in a person who had yellow fever in 1847, and one who had it in 1839.

Dr. Kennedy says he never attended a case of yellow fever in a person whom he had treated before for that disease. Dr. K.'s experience extends over a period of twenty years.

Dr. Lindsay tells me he treated this year at least a dozen cases who said they had had yellow fever before—some of them in 1847; but he cannot vouch for the accuracy of their statements. He had one case this year whom he treated last year in a well-marked attack. His last attack was mild, and only lasted two days.

Dr. Moses M. Dowler, who has practiced here seventeen years, says he never saw a second attack of yellow fever in a person whom he had himself attended, but a good many who said they had it the second time, and had been attended by others; he is disposed to believe that such instances have occurred.

Dr. W. Stone, and Dr. Sunderland also, say they never knew a second attack, and are disposed to doubt the testimony of those patients who told them they had the disease more than once. Both of these gentlemen are of opinion that second attacks of yellow fever are as rare as second attacks of small-pox or measles. Dr. Stone even goes so far as to think that *acclimation once at-*

tained, is never lost by removal from localities where yellow fever prevails.

It is needless to multiply quotations upon this point, as contradictory testimony and conflicting opinions might be obtained throughout the profession. The thing is at last reduced to a *matter of opinion*, and cannot be definitively settled. Those who have made up their minds that a person can have yellow fever *but once*, will not be convinced to the contrary *by any facts that can be presented*, and *vice versa*.

3. *Attacks upon creoles or natives of New Orleans.*—One of the most extraordinary features of this epidemic is presented in the fact that the natives of the city, *both white and colored*, have suffered severely, and many of them died of it. This is generally admitted, and beyond dispute. Children who were born since '47 have suffered most; but many born previous to that time likewise suffered, and some of them died of black vomit. I saw two Quadroon girls, sixteen and seventeen years of age, who were natives, and had never lived anywhere else—they had the fever severely, but recovered. A child, aged five years, in the same family also had it. I attended a quadroon boy, about eight years of age, who had a severe attack, attended with hæmorrhage from the gums. I have already mentioned the case of a white infant only *five weeks old*, that died of black vomit. It may be stated generally, that all children, and young persons in the city, who had never had yellow fever previously, were attacked this year. Of course there were some exceptions to this, as there are to every general rule.

I am informed that the Creoles on the coast, above and below the city, suffered much more from yellow fever than those in the city, many adults having died of the disease.

4. *Attacks upon Negroes.*—This epidemic affected unacclimated negroes, or those who had never had yellow fever before, as generally as it did the white population, though not so severely. This is equally true of the mixed races generally. It is a well established fact that there is something in the negro constitution which affords him protection against the worst effects of yellow fever; but what it is I am unable to say. During an epidemic he will take the fever almost, if not quite as readily as the white, but it will be altogether milder and less dangerous in its tendency. In short, it will correspond more exactly with the bilious remittent fever that prevails in the country, and requires

precisely the same treatment. And yet this type of fever in the city negro must be produced by the very same cause that gives rise to malignant yellow fever in the white race. Occasionally we see the hæmorrhagic diathesis of yellow fever displayed in the negro, but it is by no means common. The least mixture of the *white race* with the *black* seems to increase the liability of the latter to the dangers of yellow fever; and the danger is in proportion to the amount of white blood in the mixture. Very few negroes die of yellow fever in this city; but I learn that a considerable number have been lost on the plantations this year. The cause of this may readily be imagined when it is recollected that yellow fever never prevailed on the plantations before, and of course most of the physicians were not familiar with its treatment.

I consider the danger to negroes from yellow fever to be no greater than that from *bilious fever* in the country, and *not half so great as from congestive intermittent.*

FEVER STATISTICS.

In my previous memoranda frequent allusion was made to the various types or kinds of fever that were designated in the reports from the cemetries during the prevalence of the epidemic. The following table will show the principal types of fever that appeared in the *mortuary* reports of the Board of Health during the months of June, July, August, and September.

FEVERS.	DEATHS.			
	June.	July.	August.	September.
Scarlet,	16	1	1	0
Typhoid,	13	29	18	8
Typhus,	15	3	17	4
Remittent bilious,	17	14	9	2
Congestive,	12	24	20	8
Pernicious,	13	10	59	30
Cerebral,	6	6	22	0
Malignant,	1	6	5	3
Uncertain,	3	2	6	1
Intermittent,	1	7	8	1
Yellow,	46	1380	4797	722
Total,	143	1482	4962	779

Various names of fever found on the reports from the cemeteries, such as nervous, hectic, Chagres, putrid, ataxic, worm fever, etc., have been omitted, as the cases amount to but few.

From this table it will be seen, that in the month of June the deaths from all the fevers specified amount to 143; of which yellow fever, 46. In July, all fevers, 1,482; yellow fever, 1,380. In August, all fevers, 4,962; yellow fever, 4,797. In September, all fevers, 779; yellow fever, 722.

The total number of deaths from *all fevers* during these four months, as published, was 7,472; of which 6,945 died of yellow fever, and 527 died of other types.

From these *mortuary* statistics it will be seen that during the reign of the *great epidemic*, which slew its thousands, people likewise died of *all sorts of fever*. The statistics of the *living*, which I shall now present from the Charity hospital, also show a similar variety of fevers prevailing together, though in somewhat different proportions.

Table showing the number of patients admitted into the New Orleans Charity Hospital, for all diseases and for all kinds of fever, during each month of the year 1853.

1853. FEVERS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals
Intermittent, .	272	193	207	168	223	314	335	181	112	229	237	169	2,640
Remittent, . .	41	28	18	21	26	79	126	15	21	34	12	21	442
Continued, . .	13	14	5	16	8	11	6	1	2	1	0	1	78
Typhoid, . .	44	20	14	16	16	13	8	2	2	2	22	9	168
Typhus, . . .	63	39	44	36	6	8	2	0	0	0	5	10	213
Congestive, . .	7	2	1	0	2	3	4	4	6	0	0	0	29
Ephemeral, . .	6	1	3	3	9	5	10	11	15	4	4	2	73
Pernicious, . .	0	1	0	0	1	7	5	7	6	1	1	1	30
Scarlet, . . .	0	0	4	0	2	1	0	0	0	0	0	1	8
Yellow, . . .	0	0	0	0	5	50	1,157	1,495	350	142	14	4	3,217
All fevers, . .	446	298	296	260	298	491	1,653	1,716	514	413	295	218	6,898
All diseases, .	1,196	928	972	918	916	1,127	2,096	1,940	874	870	923	930	13,580

From this table it will be seen that the admissions for *all diseases* amount to 13,580

Of which there were admitted for *all fevers*, ... 6,898

" " *intermittent fever*, ... 2,650

" " *yellow fever*, ... 3,217

If we now examine the *five months* during which yellow fever chiefly prevailed, viz.: June, July, August, September, and October, we shall find that the admissions for *all fevers* were 4,703

Of which *not quite two-thirds* were yellow fever, .	3,194
" *more than one-third* were intermittents, .	1,171
The balance, of *various types*, ...	338
	4,703

These statistics will doubtless surprise those who are under the impression that when yellow fever prevails as an epidemic, all other types of fever vanish from the field. And furthermore, when we take into consideration the *established fact*, that these different types of fever prevailing together, *are often merged into one another*, it appears to me to indicate the existence of *a close relationship between them.* In the mass of testimony from various quarters, which I shall present in this paper, I hope the reader will bear in mind the fact noticed both here and elsewhere, that physicians often supposed they were treating *bilious remittent* fever, until they saw the disease terminate in *black vomit.* In my previous writings on the fevers of New Orleans (*New Orleans Med. and Surg. Journal, and Southern Medical Reports*), I have given the statistics of a number of years, tending, as I think, to establish this point; but the reader may think differently. The intermittent and remittent bilious fevers of a sickly summer and autumn *in the country*, are known to interchange type, or run into each other, and are generally considered *varieties of disease*, arising from *a common remote cause.* The very same thing takes place in respect to the intermittent, remittent, and yellow fevers of this city. What it is in this locality that gives rise to the variety or type of endemic fever, called *yellow fever*, I cannot tell; but the facts surely stand as I have presented them.

The number of yellow fever cases admitted into the Charity Hospital this year, was not so great in any month as it was in 1847, whilst the proportion of intermittents was greater: thus, in the month of August, 1847, the number of yellow fever cases admitted was 1,611, and of intermittents, 74; whilst in 1853, in August, the yellow fever cases were 1,495, the intermittents, 181. There would have been more admissions in 1853, but for the many temporary hospitals that were established by the Board of

Health, and the Howard Association, which greatly relieved Charity Hospital.

There having been 3,052 cases of yellow fever admitted into the Charity Hospital, and 1,765 deaths during the four months stated, it follows that the mortality was 57½ per cent. Considering the malignancy of the epidemic, and the late stage in which a majority of the cases were admitted, this rate of mortality is by no means discreditable. From a report to the Board of Administrators on the 1st of October, by the house-surgeon, Dr. Choppin, I find the following items relative to *the length of time* the patients were sick previous to admission, in 1,600 fatal cases:

516 sick	1 day or less.
319 "	2 days.
242 "	3 "
206 "	4 "
76 "	5 "
38 "	6 and 7 days.
200 "	8 days.

From this it is evident that *upwards of a thousand cases were admitted when the disease had already reached its second stage.* Dr. Choppin further states, that 168 of these cases were in *articulo mortis* when admitted. He estimates that about 7 per cent. of all the cases of *black vomit* in the hospital this year *recovered.* This, if true, is extraordinary.

Dr. Jewell, of Philadelphia, gives a table of 44 cases of yellow fever in that city last summer, which shows a mortality of 86 per cent. Of 11 cases treated in the Pennsylvania Hospital, 4 recovered. In the Blockley Hospital, there were 3 cases, and 1 recovery.*

It is difficult to draw any thing like a fair comparison between the results of treatment in the Charity Hospital and in private practice, on account of the advanced stage of disease in which patients generally are when they apply for admission, especially in yellow fever and cholera. For the latter disease they seldom apply until they are on the verge of collapse, and too often when perfectly hopeless. Fifty per cent. is about the general average of mortality from yellow fever at this hospital in epidemic seasons. Sometimes it is much greater.

* Quarterly Summary of the Transactions of the College of Physicians of Philadelphia, October, 1853.

SISTERS OF CHARITY.

I have ascertained from enquiry of the acting sister Superior, that when this epidemic broke out, there were *twenty-two* sisters of charity on duty at this hospital. Of these, 15 never had yellow fever previously, and 7 had. *Six* took the fever this year, and *four* of them died.

Of the 9 sisters who have escaped yellow fever thus far, 1 has been here 19 years, with the exception of 3 years absence;

1	has been	here	16 years (continually).
1	"	"	13 years.
2	"	"	3 years.
1	"	"	2 years.
2	"	"	1 year.
1	"	"	6 months before the epidemic.

Of the recoveries, 1 had been in the hospital 3 years, and 1 2 years.

Of the deaths, 1 had been there 6 years.
1 " " 1 year.
2 " " 3 months.

Of the 7 who had had the fever previously—

2	had been	here	10 years;	had it in	1843–4.
1	"	"	11 years;	"	1842.
2	"	"	2 years;	"	1852.
1	"	"	10 years;	"	1844.
1	"	"	7 years;	"	1847.

These statistics afford but little support to the advocates of contagion. The sisters of charity in this institution do not nurse the patients, but are very often in the wards, and direct the administration of all the prescriptions.

I will now give such reports and statistics as I have been able to procure from the other hospitals, prisons, asylums, and benevolent societies in the city, and first

THE MAISON DE SANTE.

This was formerly Dr. Stone's private infirmary, but is now in the possession of the Sisters of Charity, who keep it in beautiful style. They employ Dr. Stone and Dr. Wedderstrandt as

consulting surgeons, and Dr. Boyer as resident physician. We are indebted to the politeness of the latter gentleman for the following interesting report:

DR. FENNER,

DEAR SIR,—At your request I send you the number of admissions and deaths of yellow fever, in the Maison de Santé, during the epidemic of 1853.

Very respectfully,

P. C. BOYER, *Resident Physician.*

At the Maison de Santé, the first case of yellow fever was admitted on the 13th of July; from that time until the disappearance of the epidemic, the admissions of yellow fever amounted to 338; the deaths during the same time, 97. Among the number discharged cured there were fifteen cases of black vomit.

Six of the Sisters of Charity connected with this institution were unacclimated; three of the number recovered from yellow fever, the others passed through the epidemic without being attacked.*

Maison de Santé, N. O., Nov. 11, 1853.

THE TOURO INFIRMARY.

This is a new hospital, which has been established within the last year or two, by the munificence of the venerable Mr. Touro, one of our oldest citizens, and one who has used his immense wealth more for the improvement of the city than perhaps any one who has ever lived here. The infirmary which has the honor of bearing his name is under the exclusive control of Dr. J. Bensadon, who has politely furnished me the following report on yellow fever:

Yellow fever cases from July 1st to November 1st:

	Admitted.	Discharged.	Died.
Males,	362	218	144
Females,	161	92	69
Totals,	523	310	213

Three recovered from black vomit, 18 from hiccup and hæmorrhage; 109 died with black vomit.

Of the 213 deaths, 26 died within 10 hours after their admission; 38 within 24; and 24 within 48.

A large number of the yellow fever cases in this infirmary were sent there by the Howard Association and the Hebrew Benevolent Society. Under all the circumstances, I consider the

* There were seven sisters in the house. Those attacked had been the longest in the city, though not over three years. Two of those who escaped had come from the North in March last.

success of Dr. Bensadon in the late epidemic highly creditable. The infirmary is situated on Old Levee street, just above St. Mary's Market.

CITY WORKHOUSE AND HOUSES OF REFUGE.

We are indebted to Dr. John F. Thorp, the attending physician, for the following reports of the *first ten cases* of yellow fever that occurred in each of these institutions.

CITY WORKHOUSE.

Situated on Hevia street, in the back part of the city, parallel with the Charity Hospital. The inmates are chiefly males, condemned to work for short periods as punishment. Dr. Thorp gives the date of admission into the workhouse, the date of attack, and the results.

	Admitted.	Attacked.	Result.
Case 1, ...	June 9th.	June 29th.	Cured.
" 2, ...	Unknown.	July 2d.	"
" 3, ...	May 10th.	" 2d.	"
" 4, ...	June 18th.	" 2d.	"
" 5, ...	Unknown.	" 2d.	"
" 6, ...	July 11th.	" 12th.	"
" 7, ...	June 18th.	" 13th.	"
" 8, ...	July 14th.	" 15th.	Died.
" 9, ...	June 9th.	" 18th.	"
" 10, ...	July 2d.	" 14th.	Cured.

Total number of cases treated in this place, 89. Deaths, 14.

BOYS' HOUSE OF REFUGE.

This institution adjoins the City Workhouse. The first case of yellow fever that occurred here was on the 22d of June, in a boy who had been in the house *one year*. The next five cases had also been confined there *one year*. There were twenty-one cases in all, of which six died.

GIRLS' HOUSE OF REFUGE.

Situated on Apollo street, near Triton walk.

The *first two cases* occurred on the 1st of July. There were twenty-one cases in all, of which only one died, and she a matron who had been in the house for several months. Dr. Thorp appends the following remarks on the cases in this institution:

These persons had all been in the Refuge for some months, and from this fact I believe the disease originated there; or, rather, that their isolated condition did not protect them from the general cause, or epidemic influence, prevailing at the time. Both Houses of Refuge were in bad condition as to cleanliness.

CITY PRISON, PARISH JAIL AND LUNATIC ASYLUM, AND BOYS' HOUSE OF REFUGE.

Dr. E. Sabatier is the city physician for the Second and Third Districts, and has charge of all these establishments. On account of recent bad health, Dr. S. cannot at this time furnish a full and minute account of the yellow fever at these places, but has kindly given me a few notes, which I deem worthy of insertion. There was more yellow fever in the City Jail and Parish Prison this year than ever before.

The first case occurred about the last of July, in a man who had been in the prison about three months, and had been treated for intermittent fever about two months previously. At the time above stated, he was taken out to court for trial, or something of the kind. Whilst there he was attacked with yellow fever, and taken back to the prison. His attack proved a severe one, attended with hæmorrhage and yellowness, but he finally recovered.

About a week afterwards another case occurred, in a man who had not nursed, or been about the first case. From this time cases continued to multiply, till they reached the number of thirty, of which five died. There were about three hundred prisoners in the jail at this time, and there was free intercommunication amongst them; in fact, they were kept together within very narrow limits. There were two rooms set apart for the hospital, in one of which the yellow fever patients were kept by themselves. Before this was done, however, several were attacked with yellow fever, who had been placed in hospital for other complaints. If the disease were really *infectious*, it appears strange that only thirty out of three hundred should have taken it under circumstances so favorable.

The Lunatic Asylum is a department of the Parish Prison, and is used chiefly as a temporary resort for lunatics previous to their being sent up to the State Asylum at Jackson. There were from thirty to forty inmates during the summer, much crowded; no separate apartment for the sick. There were nine cases of yellow fever amongst them, and no death. The first two cases

occurred on the same day (August 6th), in persons who had been in only a few days. The next case occurred on the 10th of August, in a man who nursed the first two. There was then a lapse of nineteen days before another case occurred. He had been in the Asylum ever since the 7th of January previous. The last case occurred on the 1st of October.

Most of the cases occurred in those who waited upon the sick, but they were all in such close quarters that there could not be much difference in the amount of intercourse.

The Boys' House of Refuge of the Third District is situated on the Gentilly road, quite in the country, about three miles from the city prison.

Dr. Sabatier says there was a good deal of yellow fever among the inhabitants around the Asylum, but *only one case* occurred in the Refuge.

PRIVATE INFIRMARIES OF THE BOARD OF HEALTH.

The Board of Health established four temporary hospitals during the worst of the epidemic, one in each district of the city. I have before me reports from two of them, viz. No. 1 and No. 4, which furnish the following statistics:

No. 1 . . . received 343 cases, and lost 155.
No. 4 . . received 432 cases, and lost 207.

I have not been able to collect any information from the other hospitals and asylums in the city.

HOWARD ASSOCIATION.

This far-famed benevolent Association consists of but thirty members, is a chartered institution, and has been in existence ever since the year 1837. The following statistics are taken from Dr. Bennet Dowler's "*Tableau of the Yellow Fever of 1853*," published in Cohen's New Orleans Directory, for 1854.

"According to the report of the Howard Association, published late in December, the Society had under its care, during the epidemic of 1853, no less than 11,088 yellow fever patients—5,203 males, 5,885 females; of whom 2,942 died, and 8,146 were cured. Expenditure, $159,190 32. Average for each patient about fourteen and one-third dollars. Of this number (5,845), much more than half were Irish; German (2,890), nearly a quar-

ter; French, 436; United States (716), less than one in sixteen of the whole. Hence, it appears that Ireland and Germany give 8,735; other countries, 2,353.

"The Association, during the epidemic, received from all parts of the Republic, the sum of $228,927 46, and expended $159,190 32; leaving a large surplus to be put out at interest for this charity. * * * * The predominance of female patients in the above enumeration is remarkable, inasmuch as that sex is least susceptible to the yellow fever, and contributes to the mortality of this disease in a ratio greatly inferior to males. The most probable explanation is this: females preferred the Howard Hospitals to the Charity Hospital and others established by the Board of Health."

Its benevolent aid was extended to about twenty places in Louisiana, Mississippi, and Texas. About forty physicians enrolled their names, subject to call, soon after the Association offered its benevolent services to the indigent sick. Three of these physicians fell victims to the epidemic, viz., Dr. Jacobson, late of St. Louis, Dr. Friend, late of Alabama, but originally of Petersburg, Va., and Dr. Lucien Hensley, late of Frankfort, Ky., all most worthy and intelligent gentlemen. Peace to their *manes!* They fell in the *holy cause of suffering humanity*, and perhaps will have no more durable monument to their memories than this brief notice of their untimely fate. Dr. Friend was a widower, of middle age, who had very recently settled amongst us, and has left a family of orphans, who, I hope and trust, may never suffer for want of that benevolence which he so liberally displayed while living.*

MORTALITY OF THE EPIDEMIC.

Under this head I shall endeavor to give the number of deaths from yellow fever, and the per centage of mortality to the number of cases, and to the population of the city. I regret that these statistics are not as precise and correct as is desirable; but they are the best we have, and I do not think they are far from

* It is not without deep regret that I notice in the Report of this Association, an omission to do justice to the medical profession. Nearly all their patients were attended by the physicians who had enlisted in their service; and yet the only allusion to them is in the statement that out of their overflowing treasury they paid them a small sum of money. Not even a passing tribute is paid to those noble fellows who died in the service.

the truth. The figures heretofore given were taken from the weekly and daily reports from the cemeteries as published in the newspapers of the city, and doubtless contain some errors. Since the close of the year, the Sanitary Commission have employed Dr. D. Macgibbon, a competent person, to examine the reports from all the cemeteries, and prepare a *mortuary table*, giving the statistics of disease, age, sex, nativity, etc. I find some discrepancies between this table and the weekly reports; but they are not very important. For instance, the difference in the *aggregates of certified deaths* from yellow fever is only 54; Dr. Macgibbon making it 7,849, and the papers making 7,902. It is presumable that Dr. Macgibbon's table is most correct; and as it receives the sanction of the Sanitary Commission, I shall adopt it for my future calculations.

This table shows the total mortality from *all causes* for the year, to be 15,633; of which, the cause of death is *not stated* in 1,150.

The deaths from *all fevers* amount to 8,518; of which, from

Yellow fever,	7,849
Malignant "	34
Pernicious, "	152
Congestive "	77
Remittent "	29
Intermit'nt "	38
Bilious "	21
Typhus "	103
Typhoid "	146
Other fevers,	69
	8,518

Of this immense number of deaths from fevers, only 142 occurred previous to the month of May.

In regard to *sex*, in yellow fever, males, white, 5,292

" colored,	17
	5,309
Females, white,	2,475
" colored,	21
	2,496
Sex not stated,	44
	7,849

AGE.												
1 month and under.	1 year and under.	5 years and under.	10 years and under.	20 years and under.	30 years and under.	40 years and under.	50 years and under.	60 years and under.	70 years and under.	80 years and under.	90 years and under.	100 years and under.
7	90	196	197	1,598	3,310	1,238	436	180	54	15	3	00

PLACE OF NATIVITY.															
Not stated.	New Orleans.	Louisiana.	N. Carolina. Virginia. Kentucky.	N. Western States.	Northern States.	British America.	Great Britain.	Ireland.	Germany.	France.	Holland. Belgium.	Austria. Poland. Denmark.	Norway. Sweden.	Spain. Italy.	West Indies South America.	Unknown country.
524	87	28	54	63	112	7	131	1842	1209	271	48	84	7	46	4	355

These statistics are very remarkable, and somewhat different from the ordinary results of yellow fever. In regard to *sex*, the proportion of deaths among *females* is larger than usual. I know of no special cause for this.

In respect to *age*, the greatest number of deaths, as usual, occurred among those who were in the *very prime and vigor of life*, i. e., between the ages of 20 and 40 years. Largely over half the deaths from yellow fever (4,908) occurred at this period of life. The proportion of deaths among the *very young and very old* was unusually great.

In respect to place of nativity, 344 were born in the United States, and 3,649 in foreign countries. The number is very large in which the nativity is "*not stated*" and "*unknown*." Ireland, Germany, and France furnished a majority of the cases from foreign countries (3,322).

The number of deaths among natives of New Orleans (87) and of Louisiana (28) is unusually great.

We have just been speaking of deaths from yellow fever that were *certified* by physicians and others duly authorized. The reports from the cemeteries give upwards of 700 cases during the epidemic period in which the disease is "*not stated*." We have seen that the editors of the city papers estimated *six sevenths* of these as belonging properly to the yellow fever list, and have added them accordingly. On comparing notes with a number of

physicians, I am induced to think this estimate too large, and that about *one third*, or 225 would be nearer the truth. This, added to the 7,849, would give 8,074 *as the most probable grand total of deaths from yellow fever in the city of New Orleans.* Assuming this to be correct, and having ascertained some *fixed data* in regard to the number of cases and deaths in various institutions of the city, we may now proceed with an *approximative* calculation of the number of cases of yellow fever that occurred in the city, and also the rate of mortality for the whole.

The following data may be considered as *fixed:*—

Treated at	Cases.	Deaths.	Loss, per cent.
Charity Hospital,	3,217	1,890	58.75
Howard Association,	11,088	2,942	23.53
Maison de Santé,	338	97	28.70
Luzenberg Hospital,	150	79	52.66
City Workhouse, 1st District,	89	14	15.73
Boys' House of Refuge,	21	6	28.52
Girl's " "	21	1	4.76
City Prison,	30	5	16.65
Lunatic Asylum,	9	0	0.00
Circus Street Infirmary,	300	100	33.33
	15,263	5,054	33.11

We thus have 15,263, with a loss of 5,054, which is at an average rate of 33.11 per cent. As these cases occurred chiefly in the *charitable institutions*, the rate of mortality will surely be considered *very moderate.* I have here omitted the cases treated in the Touro Infirmary and the temporary hospitals of the Board of Health, because, on inquiry, I find the most of them are included in the Report of the Howard Association.

If we now deduct these ascertained deaths (5,054) from the total deaths by yellow fever (8,074), there will remain 3,020 deaths to have occurred in other infirmaries, asylums, and private practice. If we allow 300 deaths to the infirmaries and asylums not stated, and the same proportion of cases to deaths as in the institutions above given, we shall have the number of cases raised to 16,163, and the number of deaths for *private practice* reduced to 2,720. Now if we allow five cases to each of these deaths, or a loss of 20 per cent., it will give 13,600 cases, which, added to the above-stated, makes 29,763 *as the probable grand total of yellow fever cases that occurred in the city during this epidemic.*

Now, estimating the population of the city that remained du-

ring the epidemic at 100,000, it would appear that 29.76 per cent., or about 1 in 3.4 were attacked) and about 8 per cent., or 1 in 12.5 died.

Estimating the population at 120,000, the number attacked was 24.80 per cent., or about 1 in 4, and the mortality about 6 per cent., or 1 in 16.

Dr. B. Dowler says in his *tableau*, before quoted:—"The population of New Orleans when the epidemic broke out is estimated at 150,000, or 4,541 more than that of the city census of the year 1852, which gave a total of 145,483. It is probable that 30,000 people left the city, whereby the population remaining was reduced to 120,000, including 30 or 40,000 who had never passed through an epidemic, and perhaps many thousands that have passed untouched through the epidemic of 1847, some of whom suffered in 1853; an enumeration, however, merely proximate without any certain basis."

Dr. D. shows, by statistics made out from the weekly reports of the cemeteries, that "the epidemic caused but a slight oscillation among other maladies while its pestilential waves rolled over the devoted city."

The great epidemic of 1847 caused only about 3,000 deaths in this city and Lafayette, which were then separate, but are now united.

If it should be thought by any one that the estimate here given of the ratio of cases and deaths to population is too far below that of other places where this epidemic prevailed, let it be remembered that there was a much larger proportion of acclimated persons in New Orleans than in those towns where yellow fever does not ordinarily prevail, and the estimate will not then appear so unreasonable.

Let us now review some of the most prominent facts presented in the foregoing history of the epidemic, in the city of New Orleans.

1. We have shown that when this pestilence broke out, the condition of the city, in respect to *cleanliness*, was so bad as to be an object of *public notoriety*.

2. We have shown that yellow fever appeared in the city much earlier than usual, and that the first cases occurred in persons who had been here a very short time. These were unacclimated persons, who had just arrived in vessels direct from New

York, Liverpool, and Bremen, without stopping at any place where yellow fever was prevailing:—

3. That no vessel arriving here from any *infected port*, either in the West Indies or South America, brought any cases of yellow fever, or had any on them after getting here, previous to those which must have originated in the city:—

4. That within a very few days after the occurrence of the first cases, others were seen in different and remote places, and that no connection or intercommunication could be traced by the most careful investigation:—

5. That the disease was the same that prevails here, to a greater or less extent, every year, differing only in its malignancy:—

6. That all the varieties of *endemic fever* which prevail throughout the southern country, were seen here in the midst of the epidemic, and they interchanged type just as is observed among the fevers of the country.

From all these facts I am led to the conclusion, that the disease we have been considering, *originated from local causes, in conjunction with an extraordinary constitution or condition of the atmosphere existing at the time.*

Having thus completed my account of the epidemic in New Orleans, with the exception of some remarks on the causes, pathology, and treatment of the disease, which will appear at the end of the report, I shall now give such additional information as I have obtained from the proceedings of the Sanitary Commission, and communications received from various parts of the surrounding country where the same epidemic prevailed.

As this report is intended to be more of a *historical* than scientific nature, I trust I shall be excused for swelling its volume with evidence of the kind about to be presented. When all the facts are laid before the reader, he will be better qualified to arrive at just and correct conclusions in regard to all disputed points.

SANITARY COMMISSION OF NEW ORLEANS.

This committee consists of five gentlemen of high standing, who were appointed by the City Council to investigate thoroughly the late epidemic, and to report a system of sanitary measures for the future protection of the city against the ravages of yellow

fever. It consists of the following members: Dr. E. H. Barton, Dr. A. F. Axson, Dr. J. L. Riddell, Dr. J. C. Simonds, and Dr. S. D. McNiel, with whom was associated the Hon. A. D. Crossman, late Mayor of the city. A liberal appropriation was made to enable them to carry out the object of their appointment. They entered with alacrity into the performance of the important duties assigned them, soon after the first of October, and pushed their investigations far and near with the most commendable zeal. In the course of a few months they succeeded in collecting a large amount of reliable and interesting information. The work is now in course of publication, and will doubtless prove highly important. My own labors have been submitted to the commission, and they have allowed me free access to their proceedings, with liberty to make such extracts as I desired. I have selected the following items out of the large mass of evidence, as belonging to the field of observation assigned to myself. I shall endeavor to be as concise as possible, taking only the *gist* of the matter, mostly in my own words.

Abstracts from the minutes of evidence, relative to yellow fever, taken before the Sanitary Commission.

October 12th. Dr. N. B. Benedict, of New Orleans, gives an exceedingly interesting account of *seven cases* of yellow fever that originated near a place called Hollywood, on Mobile bay, opposite the city of Mobile. The cases occurred in three families that lived in close contiguity. Dr. B. says, "The neighborhood is one mile and a quarter from the bay, distant also from any thoroughfare, and in an elevated pine region, which is free from all accumulations of filth or stagnant water." The only unusual thing mentioned was the digging of a *well*, six feet square and sixty feet deep, about one hundred yards from the house, about the time that the first case of yellow fever occurred. The fresh dirt taken from this well amounted to about two thousand cubic feet, and was spread around the well to the extent of forty or fifty yards. The summer had been unusually wet. "In this locality occurred seven unequivocal cases of yellow fever; and so complete was the insulation, so abundant and perfect the testimony, that I considered the opportunity as one of the most precious, perhaps, that had ever fallen to the lot of a physician for discovering some means to settle the vexed question of the origin of the disease. A most careful investigation was under-

taken, and continued from the 17th to the 27th of September, and resulted in the utter failure to trace any connexion, immediate or remote, between these cases and any others." Dr. B. seems to be decidedly of the opinion, that they arose from the exposure of the fresh dirt from the well, in conjunction with the existing condition of the atmosphere. Thinks the facts tend strongly to sustain the theory of Dr. Barton.

The first case was an orphan boy, aged six years, who was born in Florida, but had lived in this vicinity from infancy. He had never been out of the neighborhood since that time. Lived in the family of Mr. Stevens, whose house was nearest the well. After complaining for a day or two, he was attacked on the 15th September, and died on the 19th, with black vomit and yellowness of the skin. Dr. B. says, "In the whole course of my experience, I have seen no case of yellow fever where the characteristic color, after death, was more perfect, even to the minutest details."

The second case was Mr. H. W. Stevens, the gentleman with whom this boy lived. Mr. S. had resided constantly here for the last four years; never was in New Orleans. Many months had elapsed since he had been in Mobile—long before the late epidemic broke out there. Had been unwell for several days, but was attacked with chill and fever on the 17th of September, and died on the 21st, after discharging matter like black vomit from the bowels. The body turned as yellow as an orange. The other five cases occurred in this and the adjacent houses, which had all been exposed to the *same local and atmospheric causes, and none other.*

Dr. B. says: "Three cases of yellow fever had occurred at the Hollywood hotel—the first, from New Orleans, seized August 26th, and died August 29th; the second, from Mobile, seized September 4th, and died on the 7th; the third, likewise from Mobile, seized September 10th, and died on the 15th, three days after my arrival there. But no intercourse existed between that place and the neighborhood just mentioned. My inquiries were minute, and especially directed to this point. * * * No goods of any description were brought among them from any other place, for many months, and the importation of the disease by *fomites* was an impossibility."

In support of his conclusion, that the freshly exposed earth from the well had exerted much influence in causing the outbreak

of yellow fever in this isolated spot, Dr. B. mentions a similar effect of stirring the ground near Gainesville, a village in the pine woods in Mississippi. The wife of an acquaintance of his, who lived near, was attacked with fever, and died with black vomit and yellowness of the skin, in October.

He also mentions the case of Presler's family, who resided at a very secluded spot, about two miles from Fort Adams, Mississippi. Near the residence there was a considerable *land-slide* produced by the unusual frequency of rains this year. This case will be mentioned again in the testimony of Dr. Sunderland and Dr. T. B. Benedict, taken subsequently.

October 15th. Dr. W. U. Parrham, of New Orleans, a retired practitioner, says he was attacked himself, at a place on the Mississippi river, fourteen miles below the town of Providence, on the 15th of September; says he had yellow fever in 1847, but thinks the last was a *second* attack, from the similarity of symptoms. He had left New Orleans on the 15th of July. The plantation at which he staid was high and dry. Thinks he contracted the disease by visiting the steamboats that stopped at the place, though he admits that *three weeks had elapsed between his last visit to a boat and the time of his attack.*

Dr. P. says two negroes were attacked on the adjoining plantation; the first died; the second had waited on the first—he recovered. Dr. P. does not know whether these negroes had been on the boats; mentions no other cases on that place. Mentions the case of William Haines, on a plantation one mile below Bonman's, where the last mentioned cases occurred; he died. Mentions no other cases there, and does not say whether Haines visited boats. Mentions the case of the mayor of Vicksburgh, who had yellow fever at Edwards' Depot, on the railroad between Vicksburgh and Jackson, Miss., without communicating it to any one.

Dr. Porter, of New Orleans, had visited Thibodaux, in this state: says the disease prevailed fifteen miles up and down the Bayou LaFourche, independent of communication. Mentions Dr. Kittridge's negro boy, the first case in his family. He had not been exposed to infection, and it must have originated there. Mentions Major Nelson's, and other cases where *strict non-intercourse* had been observed.

Dr. J. J. Kerr, of New Orleans, says he observed nothing like infection; thinks the fever of this year was more malignant than common, but observed no other difference from ordinary yellow fever.

Oct. 19th. Dr. Moss, of New Orleans, thinks the late Mr. H. R. W. Hill took yellow fever from Mr. Milano, who passed through New Orleans and Carrolton. Mr. Milano was attacked five days after reaching Mr. Hill's plantation, 15 miles above the city. Mr. Hill attended closely on him, and was attacked soon after his death. There had been a great deal of sickness on Mr. Hill's plantation—bilious fevers and dysentery. Mr. Hill's overseer never took the yellow fever. At Mississippi City, across the lake, Dr. Moss says, Col. Player was attacked, Oct. 5th. Col. P. had no communication with any sick person. Says he *may have gone* on the boats. At Mississippi City, a Mr. Martin had died of yellow fever in the room below Col. P., some time in July. Mrs. Player never took the disease. (I have ascertained that Martin died at least two months before Col. P. was attacked.—F.)

Mr. R. H. McKin says he went to Galveston July 19th. The first cases of yellow fever seen there, were taken over in the ship Mexico, which arrived there August 9th: three steerage passengers were taken to the hospital. Two weeks afterwards, the hospital physician was attacked with what was called yellow fever. On the 28th August, a clerk on the strand was attacked. This man had had no communication with any case of yellow fever, nor had he received any goods from New Orleans recently. Other cases occurred three blocks distant from this man *without any sort of communication.* From this time fevers began to prevail,—intermittents amongst the acclimated, yellow fever amongst the unacclimated. Mrs. Hunt, the wife of an officer in the army, died with black vomit; but her husband escaped, though unacclimated.

(June 17th, 1854. I have just seen Mr. D. Richardson, of Galveston, one of the editors of the "Galveston News," who thinks the account given by Mr. McKin is pretty correct. Says the quarantine at Galveston is a *mere farce.* Has lived there six years; says they have more or less of yellow fever every year; and has no doubt that it originates there. The population of Gal-

veston is about 4,000, of whom 500 died of yellow fever last year.)

Oct. 22d. Dr. Rushton, of New Orleans, says his first case occurred the 23d of July, on Benjamin-street, between Constance and Tchoupitoulas; was removed to Jackson-street, back of Claiborne, 1st District. Up to that time there had been no case in that neighborhood. Five days afterwards, another case occurred in the house to which this man was taken; others followed, and then the neighborhood was affected.

Dr. Rushton gives the case of Mr. Leech, Waggaman's overseer in this neighborhood, who crossed the river to visit his brother who had yellow fever. On his return he took the fever and died. A brother who lived with him, and had not been away, took the same disease and died, as did two negroes who nursed him. Several negroes died of congestive fever on this place.

Dr. Rushton thinks yellow fever is contagious. Opinion based on Mr. Hill's case, and a similar one he had observed in 1833—Mrs. George, who took the disease in New Orleans and carried it to Plaquemine, a town on the river above. He thinks the disease of this year was imported, and was identical with the "*African fever*,"—thinks it is imported oftener than it originates in New Orleans,—is doubtful, in fact, whether it ever originates here. Thinks an effectual quarantine would keep it out.

(These are the only grounds Dr. R. gives for the opinions he so confidently expresses. By reference to the extract from my diary, it will be seen that cases occurred on Jackson and Claiborne streets on the 13th July, ten days before Dr. Rushton's case was carried there.)

Oct. 24th. M. Pradat, of Biloxi, has known unacclimated persons to wait upon yellow-fever patients without taking the disease. Knows of no instance in which it appeared to be communicated from person to person.

Oct. 25. Dr. Wood, of New Orleans, says his first case occurred June 9th. Died with black vomit on the 14th. The case was an Irishman who worked on the levee, but a week previously had made a trip as a hand on the steamer "Dr. Batey." Knows

of no case that originated from this, though the family was unacclimated. His wife and brother had it on the 20th July. Case second—a clerk in a cotton-press, 20th July. All his first cases were in the water-works region. Dr. W. does not think it contagious. Saw no second attacks,—no deaths amongst negroes. Creoles under seven years had it.

Oct. 20. Dr. J. M. W. Picton, of New Orleans, "Thinks the disease is communicable from person to person whenever the epidemic influence prevails." Thinks the disease of this year was imported. Thinks the epidemic terminated for want of subjects. Saw two recoveries from black vomit. Saw no second attacks.

Oct. 27. Dr. McGibbon, of New Orleans, says the first case he saw in private practice, was a man on the corner of Bacchus and Fourth streets, on the 24th June. Six unacclimated persons in the house, but none of them were attacked till *a month afterwards.* From that time the fever was very severe in that locality. His first case was a man who worked in a milk stable, and Dr. McG. thinks had no communication with the shipping. On the 15th, was called to a family of four. Two had it, and two escaped, though unacclimated. Saw no second attack; does not believe the disease contagious.

Oct. 29. Dr. White, of New Orleans, saw nothing to induce him to believe the disease was contagious.

Oct. 31. Dr. G. Ridgely, of N. O., has practiced in New Orleans since 1831. Saw, during the season, four or five cases of bilious remittent fever that did not assume the yellow-fever type. Late in the season this year, yellow-fever cases frequently assumed the typhoid type.

Four unacclimated persons in his own family escaped entirely: had two Irish servant girls; one had it, the other escaped. Dr. R. does not think the disease contagious. Has seen yellow fever every year since 1831, and thinks it *decidedly of domestic origin.* Had one case of black vomit to recover. Saw eight or ten others. No cases among children of *creole parents,* but many among others.

Oct. 24. Dr. Thomas Cottman, of Donaldsonville, 75 miles above New Orleans, says he has seen yellow fever at that place

nearly every year since 1830, generally in the month of September. In the neighboring country it is seen in densely-populated neighborhoods, and mostly confined to the whites. The first case he saw last year was a Frenchman, last spring from France; attacked about the 1st of August; died with black vomit on the 4th August. He had no connection with New Orleans, nor with any sick person. He took much exercise. On the 20th of August, four or five cases occurred in a different part of the town; no communication between them. This part is thickly settled with creoles, and is not known to have much communication with New Orleans, or boats from there. Boats from the city arrive four or five times a day, but land at a place remote from where the disease broke out; and no case occurred near the landing, up to the 1st October. No cases were brought on boats prior to the 15th August. No cases occurred at the public houses, though the servants were mostly white; many had yellow fever in 1852. Travelers from the city put up at these hotels. The fever of 1853 was more severe than that of 1853. Belief in domestic origin is general there. Knew of but two fatal cases amongst negroes this year. Both had black vomit. Has known of *creole children, of creole parents*, having yellow fever. One creole child, aged five days, died of black vomit. Dr. Cottman himself had yellow fever in 1837, and again in 1853. Does not remember similar instances of second attacks in others. Has never seen any thing to induce him to believe yellow fever contagious. Says the intemperate and frequenters of grogshops, at Donaldsonville, escaped the fever this year. Says ten or twelve Kentucky mule-drovers came to Donaldsonville this summer, and remained during the epidemic, occupied the same room, and slept two in a bed, in a house where there were two deaths from yellow fever. Only one of the drovers had yellow fever: his bedfellow had intermittent. The rest had had attacks of remittent and intermittent fever. Dr. C. says the inhabitants of a village called *New River*, twenty-eight miles distant from Donaldsonville, were severely scourged with yellow fever this year. An entire family died. Says, this place had no communication either with the city or the river coast

Nov. 3. Dr. Charles Delery, of New Orleans, testifies relative to epidemic along the coast above the city, in St. John Baptist parish. Says it broke out in a dense settlement of about one mile in extent. The people are wood-sellers, and have frequent

communication with steamboats. The first case was a *woman.* In two days a case occurred in the house above; seven or eight persons died in this house. Thence it extended up the coast on the same side of the river, and did not cross the river till after the 11th of October; yet some sporadic cases had occurred on the other side. Says, negroes residing remote from the river bank were less liable to it than those living near it. Dr. D. mentioned *one isolated case* of yellow fever that occurred without any communication either with any other case or with New Orleans.

Nov. 3. Dr. T. O. Meux says his first case was a creole child; occurred about 20th July. Thinks that one-fourth of all his cases this year were children born here, aged from ten or fifteen months to as many years. Several of them had passed through several epidemics.

Dr. M. thinks the disease communicable, especially in an epidemic condition of the atmosphere.

Nov. 4th. Dr. Warren Stone, of New Orleans, does not believe the disease contagious. Has known cases of it imported from the West Indies early in the season, which recovered or died without the disease spreading—the disease breaking out in the city later in the season. Dr. S. thinks the poison of the disease does not reproduce its kind, like small-pox, measles, etc. At the Charity Hospital, the nurses often escape until late in the season, when the epidemic reaches the neighborhood, and prevails around the hospital; though many cases may be brought in early. Says, the epidemic influence prevailed to a much greater extent this year than usual. The majority of cases in the country, he thinks, arose "spontaneously." Mentions the case of Mrs. McCausland, up in the country, which occurred without any communication or exposure to infection. Considers the poison of the disease this year the same as usual. Dr. S. knew cases to be brought from Baton Rouge into the country without spreading. Many old creoles in Feliciana parish secluded themselves closely, yet they had the disease as fatally as others.

Dr. S. had observed that portions of unacclimated families had the disease, whilst others equally exposed escaped. Dr. Stone thinks quarantine would be perfectly useless, as far as yellow fever is concerned: it might be serviceable against other diseases. Thinks the disease generally originates here.

Nov. 4th. Dr. J. S. Copes, of New Orleans, visited the parish of Point Coupee during the epidemic. Says many old creoles secluded themselves entirely from their neighbors without escaping the disease.

Dr. Copes visited Jackson, Miss. Says the disease appeared to have been introduced there from Vicksburg, and spread as from a focus; but that the same thing did not occur in 1841 and 1844, when it was very bad in Vicksburg, and the communication by railroad was uninterrupted.

Dr. C. thinks the disease contagious, under certain circumstances. Saw some cases of intermittent fever. No recovery from black vomit.

Prof. J. Jones, of New Orleans, has several reasons for believing the fever of this year was communicable from person to person, but has not made up his mind on the subject. His own family consisted of twenty unacclimated persons. Lost one of his children at Madisonville; then removed them out into the pine woods, where they had but one more case, a servant girl. Dr. J. says he is not certain that his child took the disease from a sick sailor on a vessel that moored near his residence in Madisonville. In other years, has known the disease carried to Madisonville without spreading. Thinks the type of the fever this year was different from the ordinary.

Dr. J. gives the case of Mr. Terry, at Pine Grove, in the pine woods about twenty miles from Madisonville. Mr. Terry came to the city during the epidemic: on his return home, sickened and died with black vomit. The nurse who attended him had black vomit, but recovered; his wife took it, and died with black vomit; then his grandchild, who recovered; then his stepson, who died.

(I understand that Pine Grove is a very small village, where yellow fever never appeared before, and the disease appears to have been carried there this year by Mr. Terry. Mr. Alexander Penn told me he knew Terry, and on seeing him here during the epidemic, asked him if he was not afraid; that Terry answered, No, and said he had had yellow fever many years ago.—F.)

Dr. Jones thinks it well enough to make an experiment with quarantine. Thinks the fever of this year may have been rendered worse by the introduction of cases from abroad, *but mentions no cases that were imported.* Says there may be black

vomit without yellow fever. Knows of no second attacks; but saw persons attacked this year, who had passed through other epidemics, and considered themselves acclimated.

Nov. 5th. Dr. A. J. Wedderburn, of New Orleans, saw his first case on the 5th of June, at the corner of Dryades street and Triton walk. The man was an Englishman, who had resided in the country one year. Four brothers, a mother, and sister lived with him. Does not know if the case had any intercourse with the shipping. A *month afterwards* there were four or five cases in this house.

Dr. W. mentions that he lived in Pensacola in 1837, when the disease was introduced into the Navy Yard from New Orleans. He (the Dr.) took it from a case; it then went through his family, and spread from house to house. In 1839, a case was brought in from New Orleans, but did not spread. In 1841, was introduced again, and spread among the marines, who had escaped in 1837.

Dr. W. thinks the disease communicable by touch and clothing, like other contagious diseases. Has had it himself three times. Thinks yellow fever never originates here. Doubts whether a sufficiently rigid quarantine could be enforced here.

Nov. 5th. Dr. Ball's (New Orleans) first cases occurred in the first week in July, near Gormley's Basin. Thinks these cases had no intercourse with the shipping; they were laborers, who worked in the Swamp; some were draymen. Knew three cases recover from black vomit.

Dr. Ball gives an account of his visit to Lake Providence, where the disease was very bad. Says it was confined to the town, which contained six hundred inhabitants, of whom about one hundred and thirty died. The disease was the same there as here, though more fatal. It was often carried out to the neighboring country without spreading. Dr. B. does not think yellow fever a communicable disease.

Dr. B. also visited Fort Adams, on the river below Natchez, where the first cases occurred the second week of October. A plantation in the neighborhood had it two weeks before it appeared in Fort Adams. No communication between that place and the town, except through the doctors.

Nov. 5th. Dr. W. P. Sunderland, of New Orleans, says the disease radiated in different directions from the infected district about the water works. Knew cases to be carried from this to distant places without communicating it; yet the inhabitants there suffered some weeks afterwards, when the epidemic influence reached them. Many persons were taken from this district to the Washington cemetery, afar off, for burial; yet the unacclimated persons who buried them did not take the disease till the epidemic reached them in its course.

Dr. Sunderland went to Fort Adams, Miss., on the 16th of October. He found eleven cases in the place, generally of a mild character. Says the first cases occurred at a place two miles from the river, and one mile from Fort Adams. The people were poor, and had not been in the village for two months previous. The residence was on a high hill. Three or four of them died in succession. Dr. Sunderland thinks the disease must have originated there, as the family had had no communication either with boats or the town.

The next cases occurred on a plantation six miles from Fort Adams, and three miles from the river. The first case was the wife of the overseer, who was pregnant, and could not well get out of the house; she told her attending physician she had not been out of the house for two months previous to her attack. This was also on one of the highest places in the country. Two children, aged six and ten years, next took the disease; and afterwards forty-three negroes, the overseer, and attending physician Dr. Sheppard, who came from Pinkneyville. There had been no communication with Fort Adams. The first cases in Fort Adams were in the family of a Dutchman, who never suffered any of his family to approach the steamboat-landing. When the doctor arrived he found eleven cases, and entirely among those who took most pains to seclude themselves. Dr. S. cannot think the disease communicable. Out of twelve cases of black vomit, knew three to recover. Thinks he has seen the disease here every year since 1845. Thinks it originates in New Orleans; and the only difference between the fever of this year and previously, was that the former was more malignant.

Nov. 9th. Dr. S. W. Dalton, of New Orleans, thinks the disease of domestic origin; confirms the observations of Dr. Fenner in respect to some of the first cases. Thinks the disease

communicable—infectious; but not contagious. In an ordinary, healthy year the disease would not spread from a sporadic case. Dr. D. has seen cases of second attack; attended a man this year (Bowman) whom he had attended in 1847. Knows of a case of the kind, who was attended by Dr. Stone. Thinks the epidemic of this year did not stop for want of subjects, but because it had run its course: the epidemic condition of the atmosphere ceased to exist. Many creole children had the disease; but not the children of creole parents. Thinks that quarantine, as far as yellow fever is concerned, would be useless. Thinks crowded lodgings a prolific source of this fever.

Nov. 10th. Dr. Y. R. Le Monier, of New Orleans, saw his first cases of yellow fever this year on the 4th of July, up in the region where the disease first broke out; thinks they originated from local causes. Dr. L. "has not come to the conclusion that the disease is communicable." Regards yellow fever as allied to bilious fever, and not to typhus and typhoid.

Towards the last of September, Dr. L. attended the nuns in the convent below the city. At that time, he found one of them sick with yellow fever; it was her second summer here. The doctor is confident she had not been exposed to *personal* contagion in any way; the epidemic prevailed in the neighborhood. does not think quarantine would be of any service against yellow fever. Knows of no instance of second attack of genuine yellow fever. Never knew children of creole parents in this city to have yellow fever. Never saw a child under ten years of age have yellow fever.

Nov. 18th. Dr. J. B. Henderson, of New Orleans, says he never saw a second attack of yellow fever; saw three recoveries from black vomit this year.

Dr. H. visited Yazoo city, in the State of Mississippi, during the epidemic there.

Dr. H. says Mr. Session's plantation, four miles below Yazoo city, escaped the epidemic, although one case was introduced. On the opposite side of the river, and three miles below Yazoo city, on Dr. Mills' plantation, the disease spread, and many cases occurred among the negroes as well as the whites, though many white persons residing on this place escaped. Persons from Yazoo city visited this plantation. Dr. H. says he saw

many cases a few miles in the interior, from which the disease did not spread.

Nov. 23d. Mr. McRae, from Harrison county, Mississippi. says he resided, last summer, forty miles back of Biloxi; knows of no cases occurring out there which had not been exposed in Biloxi, where the disease prevailed epidemically. Says Mr. Walker made a short trip to Biloxi, returned home, and died. In one week several of his family were attacked with the disease. A person took the disease from a pedlar's clothes which had been washed at the house.

At Pascagoula, Mrs. Delmas, a creole, attended sick relatives who came from New Orleans, and was attacked herself. Col. Bliss died here of yellow fever; had not been in New Orleans for seventeen days previous. Miss P., who resided two hundred yards from Mrs. Delmas, was in constant attendance on Mrs. D., but escaped the disease; says there was much rain in the summer, and afterwards quite dry. Mr. Ramsay's family were attacked by the same disease which prevailed in the neighborhood, without having been exposed by communication with any sick person. Mr. Dickey took yellow fever at Biloxi, and returned to Pascagoula; none of his attendants took the disease. Mr. McHatton's family, which was as numerous as Dickey's or Walker's, also escaped, although exposed.

Nov. 23d. Dr. S. D. Campbell, of New Orleans, saw his first case on Jacob street, between Thalia and Erato, on the 6th June. (This locality is in the back part of the city, between the New Basin and Gormley's Basin: unpaved streets, small, framed houses, shanties.) The patient, a man, had black vomit, and died on the 12th June. He had been in the country six months—his habits good, rarely left home, and had not been exposed to the disease: lived with a tailor, named Bent, who was unacclimated. Bent's wife had the fever three weeks afterwards. Dr. Campbell inquired at the time, and satisfied himself there had been no communication between these people and the shipping. Dr. C. mentions five other cases in one house, same neighborhood, that occurred from the 14th to 19th June; none of these cases had been exposed to the disease. Dr. Campbell does not think the disease communicable. Saw no recovery from black vomit.

Dec. 28th. Dr. T. B. Benedict, resides near Fort Adams. The first persons taken sick this year were a family named Presler, living one-quarter of a mile distant from the river, an about two miles from Fort Adams, on a high hill. This occurred about the 1st of October. There is no way of accounting for the appearance of the disease, except as spontaneous. Mrs. Presler was an elderly lady, say 65 years. She seldom left home, and the family lived very secluded; and there was no possibility of her having taken it from any one. The mother, Mrs. Presler, and one son died, also Dr. Taylor, who attended the family.

Monte Rico, another plantation, is three miles distant from Presler's. The wife of the overseer living there was taken sick, after its appearance at Presler's. No communication between the places. About eighty cases occurred at Monte Rico, many of them being the negroes on the place. Dr. Davis lived fourteen miles from Presler's, passed a night there, was taken sick a few days afterwards, and died with fever. Dr. Benedict thinks the disease different this year from that he has generally seen. Dr. Baldwin lived six miles from Dr. Lewis; visited him in his illness, took the disease, and died; from neither of them did the disease spread. The brother-in-law of Presler, who resided on the opposite side of the river, died with fever, and was carried through Fort Adams to be buried. Many thought the disease was introduced into Fort Adams in this way. Dr. B. notices a peculiar odor from yellow-fever patients about the third day. Cannot say whether the disease is contagious, except in an epidemic state of the atmosphere. The season was warm, and not much moisture; less mold than usual. The sun was hot; cool in the shade, with cool nights. Frost occurred much later than usual, and did not seem to check the disease. Many persons in Fort Adams escaped, although susceptible. Has seen yellow fever before in the Charity Hospital. Noticed in the rear of Presler's house a land-slide in the bank. The soil is alluvial.

Dr. A. R. Kilpatrick, of Trinity, Louisiana, replied to the circular of the Sanitary Commission, under date of Nov. 12th. The following is the substance of his communication:—

Trinity is situated at the junction of the Ouichita, Tensas, and Little rivers; and steamboats land there at least once a week, and frequently oftener. Several cases of yellow fever were landed there during the months of July and August, all of which died;

and several corpses were put off for burial. No particular precautionary measures were used to prevent the spread of the disease; yet no one took it from these cases. There is a large steam saw-mill in the place, the sawdust from which is all used in filling up low places in the streets and gardens. The dust is in a decaying state, as the practice has been pursued for three years. There are low places in town, which hold water till evaporated. Besides this, a large space has been dug by workmen in forming a foundation for a warehouse on the bank, and the dirt (about a thousand cart-loads) is used in filling up low places in the village. Cistern-water is mostly used for drinking purposes; many, however, use river-water. More bad whisky is drunk there than in any other place.

The whole country around this place is comparatively new, and fresh openings and immense deadenings of trees are annually made. The soil is fine alluvion, and markedly paludal, being cut up with sloughs, ponds, bayous, and large lakes, besides the rivers above-mentioned. The water accumulates in winter, and runs off slowly, and probably as much disappears by evaporation as by drainage. The spring months were dry, but the summer more than usually wet. The few fruit-trees in the country bore healthy fruit. There was an unusual number of house-flies in the spring. Mosquitoes not as troublesome as usual. No disease or fatality amongst animals. *Mold* less than usual.

YELLOW FEVER AT TRENTON, LOUISIANA.

Dr. T. P. Richardson states:—"The village of Trenton is situated on the Ouichita river, nearly opposite the old-settled town of Monroe. The surface soil is generally sandy; river-water mostly used, though some families have cisterns. There has been no recent clearing in our immediate vicinity. The soil has been greatly disturbed by the improvement of the streets, and fresh dirt was hauled from a distance and spread over our main street. Several new cisterns were dug in May and June.

Boundaries of the town.—It has the river on the east, a bayou on the north and south, with a considerable marsh on the west filled with pools of water. The water does not run off freely from the town, but at the same time does not accumulate nearer than within several hundred yards of the inhabited portions of the village.

The total population was 145, of whom 110 were natives of the

United States, 9 foreigners, and 26 colored. The deaths from yellow fever were 28, all white. The number of cases of yellow fever were 52; of whom 48 were white, and 4 colored.

The first case occurred about the 1st of August, lasted about five days, and terminated fatally, as did the next two. The disease became milder after the first outbreak.

None of the first cases had been in a locality where yellow fever was prevailing. One was a merchant, who was attacked while opening fresh goods from New Orleans.

Dr. R. knows of no case that originated spontaneously without the suspicion of intercourse with other cases of the disease. Several families were attacked about the same time in different parts of the village. Dr. R. does not trace any connection between them.

Black vomit appeared in one-third of the cases; hæmorrhage in half of them; and yellowness in all. Other types of fever prevailed at the same time.

Dr. R. had seen yellow fever before, at New Orleans and Mobile; thinks this the same. One case recovered after black vomit. Not more than four or five of the attendants upon the sick, or otherwise exposed to the causes, who were liable to the disease, escaped the epidemic.

On the 28th of May, 1854, Dr. C. H. Dabbs, of Monroe, a larger and much older town than Trenton, on the opposite side of the river, and only a mile and a half distant, confirms the statement of Dr. Richardson, but does not agree with him in his conclusion respecting the origin of the disease. He says,—

"Since the epidemic, I have learned that about the first case of yellow fever occurred in a merchant who had received and opened fresh goods from New Orleans. There was free intercourse with that city by small boats, and I believe goods were so received, generally, by the merchants; but I much doubt whether the disease was brought here. Certain it is, that notwithstanding the great number who went to the country in so many directions, in no instance was disease communicated to any person out of Trenton."

Dr. D. says, four or five cases of yellow fever occurred in Monroe. Bilious, remittents, and intermittents prevailed as usual. Has lived in Monroe since 1832, and has seen but one case of yellow fever there: that was brought from New

Orleans in 1839. His experience is decidedly opposed to quinine as a remedy for yellow fever. After giving it a fair trial, he abandoned its use, and adopted a mild course of purgatives and diaphoretics, which proved very successful—as with Dr. Richardson. Both of these gentlemen are indefinite in their expressions relative to the origin of the first case of yellow fever at Trenton.

YELLOW FEVER AT CENTREVILLE, LOUISIANA.

The following interesting communication to the Sanitary Commission, from Dr. W. B. Wood, of Centreville, is copied entire:

The town of Centreville, in the parish of St. Mary, is situated on the south side of the bayou Téche, which runs at this point from the west due east, ten miles above its junction with the Atchafalaya, and five miles below Franklin. Cistern water alone is used for drinking purposes. A few clearings have been made in the neighborhood of the town during the season, and a number of ditches opened along the principal streets or roads of the village, late in the summer. The banks of the bayou are low and swampy; but at the distance of from 50 to 600 feet back, the land rises to the height of several feet. There is very little current in the stream, which is affected by the tides, and regularly flows up and down with them. The extreme difference between high and low water is about three feet. The past summer was exceedingly hot, and a very large amount of rain fell during the months of June and July. Mosquitoes and flies were more numerous than usual, and *mold* more abundant throughout the season.

The population of Centreville is about 200. The country around is thickly settled, being entirely occupied by large sugar plantations.

The total number of cases of yellow fever in the village, was 45, and of these 7 died—4 white and 3 black. The first case was on the 15th of September. A heavy frost fell on the night of the 25th of October. 10 cases occurred after that.

The first case was a mulatto man, a cooper, working and sleeping in a shop on the banks of the *Téche*. For several years, all the chips and shavings from this shop have been carried on to the low places along its banks, and into the stream to the distance of forty or fifty feet, forming a sort of wharf for the landing of steamboats. This man had no intercourse with any person affected

with the disease, nor with any place where it prevailed. He died on the ninth day, after a relapse on the fifth, having hiccough, hæmorrhage from the gums and nose, spasms, and yellowness of skin and eyes. No other case occurred until after the 1st of October.

On the 18th of September, the wind changed from S. W. to N., blowing directly over the collection of decaying chips and shavings on the bayou, into the town; and not until this change did any cases occur in the village. It blew steadily from this quarter for two weeks.

All classes of the population seemed alike susceptible of the disease, the only exception being in favor of children, very few of whom had it; and it did not seem to spread from person to person, since a majority of the attendants on the sick escaped entirely.

A chill, or chilly sensations preceded the fever, with some pains in the head, back, and extremities, accompanied with more or less vomiting. The fever lasted from thirty-six to seventy-two hours, and then terminated without manifesting any disposition to return, leaving the patient very much prostrated. Black vomit occurred in two of the fatal cases, yellowness of the skin in nearly all the violent ones, and hæmorrhage in nearly all that terminated fatally, and in some that recovered. During the summer and fall, intermitting and bilious remitting fevers occurred; but after the appearance of yellow fever, they all seemed to assume its type.

Out of thirty-five cases treated by myself, two allege they have had yellow fever before. Of those exposed to its causes, at least three escaped the disease where one contracted it. None had it who were not exposed to its common cause in the village. One case was taken into the country and died of black vomit, but no one took the disease.

YELLOW FEVER AT FRANKLIN, LOUISIANA.

In connection with the foregoing, I deem it proper to insert here the following extract from a letter to me by Dr. J. W. Lyman, of Franklin, which is only five miles from Centreville. I published this letter in the New Orleans Med. and Surg. Journal for January, 1854.

I shall omit the details of the cases, and only give some of his remarks relative to their cause:—

It is an undoubted fact that Franklin, never very notorious for its filthiness, was never cleaner—never freer from local causes of pestilential diseases, than it was on the 19th October, when the first cases occurred.

Our town council had been active in their endeavors to improve our sanitary condition. In fact, no appreciable local causes existed in or about town; and if a scientific committee had been appointed to select the dryest, cleanest, and healthiest spot in the whole town, it would most certainly have selected the residence of Simeon Smith; and yet, strange to say, here, and here only, did the fell destroyer begin and end his ravages. In the absence, then, of any such causes, where shall we look for one adequate to the production of the disease? Whence came the infection, and in what manner did it reach this family? These are questions much easier asked than answered. The following statement of facts may throw some light on the subject.

About the 25th of September, in consequence of information being received here that yellow fever was prevailing in Centreville—a little village five miles below Franklin, on the Têche—our town council adopted measures to prevent a free communication between the two places. Persons living in Centreville, and having business to transact in Franklin, were permitted to remain here but three or four hours during the day; and our citizens were warned that if they visited any infected place, they would have to submit to a nine days' quarantine before they could return to their houses. The latter part of this arrangement was not always enforced, and at *this time* physicians were exempt from the restriction. A barrier was drawn across the road, half a mile below town, and a guard stationed there to admit or reject persons from below. This barrier was kept up with tolerable efficiency until about the 10th or 12th of October, when, Centreville being reported healthy, the prohibition was withdrawn for one or two days.

On the 14th October, Mr. Smith (case 4th) sent his negro man with horses and wagon to the store in Centreville, in which he was a partner, to bring up some goods to his store in Franklin. The clerk informs me that the following articles only were brought up, viz., one bale of oakum, box of axes, box of children's shoes, and a paper package containing india-rubber coats. These goods had arrived in a vessel from New York, and had been but three days in Centreville. Mrs. S. (case 1) was in the store when these goods arrived and were opened.

This day (October 14th) the fever again broke out in Centreville, and a system of non-intercourse more rigid than the first was established. On the 19th Mrs. S. was attacked; and the only known communication of the Smith family with an infected place was as stated above. At that time the family consisted of Mr. S. and wife, five children, a clerk, and five or six servants. Mrs. M. (case 3), living in Franklin, and Mrs. J. (case 2) living three miles from town) both came to their father's on the day Mrs. S. was taken. Mr. H. Smith, eldest son of Mr. S. Smith, who arrived from the North a few days before Ellen (case 5), was attacked, and who had been pretty constantly in attendance on her, escaped. Of all the nurses and medical attendants, not one was attacked.

This, I believe, comprises all that is worth relating in regard to the yellow fever in Franklin; above this point there was not one case, while the lower end of the parish suffered to a great extent.

And now, a few words in reference to our famous quarantine.

A quarantine station was established, and a house prepared for a hospital

near the junction of the Atchafalaya and Téche, and a physician and attendants appointed to examine steamboats and other craft. All vessels from infected regions were required to undergo nine days' quarantine, dating from the time of leaving such infected region. Another station was established on the Atchafalaya, a short distance below Pattersonville, and a physician appointed to examine the mail boat and vessels coming in from sea.

Shortly after the quarantine went into operation (about the 20th of August), the steamboats Pitser Miller and Planter arrived at the station. The latter served out the required time, and came up the bayou without opposition. The former, instead of remaining at quarantine, crossed Grand Lake to Fausse Pointe, discharged part of her cargo and passengers, returned to quarantine and landed a young man who was in the last stage of yellow fever, and who had black vomit in half an hour after he was placed in charge of the physician, and died next morning. Under these circumstances, the quarantine physician properly refused to grant a permit to the boat to proceed up the bayou. Notwithstanding this refusal, the commander of the boat determined to take the responsibility of leaving and risking the consequences.

The boat then left, discharged at Pattersonville what cargo she had for that place, and proceeded up the Téche to within half a mile of Franklin, where she received warning to proceed no farther. After some little time spent in parleying and deliberation, and seeing a pretty formidable posse collected on the wharf, determined to dispute her passage, she returned to quarantine ground, discharged the portion of her cargo intended for this and other places on the Téche, and recrossed the Lake.

The quarantine was not generally so rigidly enforced as it should have been in order to test the question, of the transmissibility of yellow fever; but much more so than could have been expected from persons who were so little acquainted with the best modes of organizing and sustaining it.

YELLOW FEVER AT PATTERSONVILLE, LOUISIANA.

Dr. J. S. Grant gives the following interesting account of the epidemic at this place:—

"The first cases of yellow fever that occurred in this vicinity last season, were three persons landed from the steamer P. Miller on the night of the 8th August. I was called, on the morning of the 9th, to visit them at the place they landed, about three miles above our village. They composed a part of a family which had just emigrated to the place, from one of the Northern States. They arrived in the city of New Orleans about the 1st of August, and were necessarily detained until the 5th or 6th. On the night previous to leaving the city, the son, a young man of seventeen, was taken suddenly with a violent chill, followed by high fever, delirium, etc. In the morning his father thought him better, and decided on pursuing his journey. About 9 o'clock, the eldest daughter was taken in a similar manner; and about 12 o'clock M.,

a younger daughter,—symptoms like the others. The parents, horror-stricken at what they saw and heard in the city, decided on leaving at all hazards. They arrived at their destination on the night of the 8th, and I saw them on the morning of the 9th. On the second day the eldest daughter, a young lady of nineteen years, was taken with black vomit; but lingered forty-eight hours and died. The young man was taken with black vomit some twelve hours after his sister, and died in ten or twelve hours after that symptom supervened. The younger sister recovered, after a serious and protracted illness. In six or seven days after the death of these persons, a man-servant belonging to the same premises was taken with violent chill, succeeded by great heat, delirium, redness of eyes, etc. The delirium was so great that it required five or six strong men to hold him. His case terminated speedily and favorably, having no fever after the first twenty-four hours; complaining only of extreme weakness.

"The next case that occurred was a young man, who was permitted to pass our quarantine station on the 16th upon his promise that he would remain with his friend until the term of quarantine was completed. He remained with Capt. M. until the evening of the 22d, when he was seized with a chill, succeeded by violent fever; pains in his head, back, and limbs; injected eyes, etc. The next morning (the 23d), his symptoms being somewhat mitigated, he concluded to leave his friend's residence, and was brought to our village.

"He called at my office about 3 o'clock P. M. of the 23d, stating that he had had a singular chill the night previous; though he had had frequent attacks of intermittent fever previously, he had never experienced any thing like the present. He had not a violent grade of fever at the time I first saw him, but complained of considerable headache, pain in the back of the neck, back, and limbs, particularly the calves of his legs; eyes suffused; conjunctiva injected; considerable debility, or rather prostration of strength; nausea and frequent efforts to vomit; spirits depressed. To my inquiries, whether he had been in any place where the yellow fever was prevailing, he answered, he had been in no place where it prevailed as an epidemic; stated he got on board the mail boat at Carrolton, where there had been two or three sporadic cases, and had seen none of them. After I had prescribed for him, he returned to the hotel; and I saw no more of him until the next afternoon, when, passing the hotel, I

saw him sitting on the gallery, apparently much worse than the preceding day. Being in haste at the time, I simply directed him to retire to his bed and remain there until I returned. When I saw him next, some five or six hours after, I found my last injunction an unnecessary one; for he was scarcely able to turn in bed. On entering the room, I readily perceived that my fears were not groundless. The symptoms could not be mistaken; his nails at this time were purple, his skin livid, his eyes of reddish-yellow hue; and, above all other diagnostic symptoms, the peculiar odor on entering the room was almost suffocating.

"This patient recovered after a protracted illness, with almost every unfavorable symptom, such as hæmorrhage from the gums, bowels, and scarified surfaces.

"During the illness of this man, no person entered his room except myself, the landlord, a black man who nursed him, and my friend, Dr. Day, who was in with me once for a few minutes.

"On the 6th September, a blacksmith, whose shop stood about one hundred feet north of the hotel, the black boy who nursed the above patient, and a boy from a neighboring plantation, who had a wife at the hotel, were all three taken about the same time. The blacksmith and one of the boys died; one on the sixth, and the other (I think) on the seventh day of their illness. The other boy recovered.

"Upon a moment's reflection, it has recurred to my mind, hat previous to the last-mentioned cases, an infant of my own vas attacked in the manner above described, I think the last lay of August. Her case differed somewhat from the preceding nes, in this particular—that the fever continued for seven days vithout intermission, and was attended with more cerebral ymptoms than generally occurred. This child's recovery was xtremely slow.

"The blacksmith was a patient of my partner, Dr. Sanders; onsequently I saw but little of him until the close of the fifth ay. He being taken suddenly worse, I was called in the osence of Dr. S. I found him almost unconscious, with hæmorage from every spot where the scarificator had been applied. e survived about twenty-four hours after I saw him. This man cupied a room above a dry-goods store. The family of the erchant lived on the same floor, every member of which was equently in his room; and every one had a subsequent attack fever (six in number). I requested his friends to make prep-

aration and have him buried without delay, and exclude every one from his room but those necessary to bury him. But, instead of taking my advice, the house was thronged the whole time of the interval between his death and burial. On the day previous to his death, the clerk in the store fell sick. He had devoted much attention to his friend, being in his room a large portion of his time, especially at night. This man had a severe case, with one or two relapses. From the time of the death of the blacksmith the disease spread rapidly; so much so, that by the 21st September we had seventy-five cases in our vicinity. It extended to nearly every plantation for several miles above and below our village; respecting neither age, sex, color, nor condition in life. On some plantations every white person, with nearly every slave, passed through the ordeal; while some intermediate places enjoyed complete immunity. These last, however, were only such as had no intercourse with supposed infected districts.

"In our little village nearly every individual had the disease, during some period of its prevalence,—that is, from the above date until late in December. Whenever it made its appearance in a family, it generally sooner or later extended to every member, in what we considered the infected region. Many persons who visited this place contracted the disease; but in no case that I learned, did they communicate it to their friends or attendants, when they lived beyond certain limits. The range of country from about six miles above this place to nine miles below, along the margin of the river, comprised our sickly region; many of the intermediate plantations, however, remained healthy. The number of cases here exceeded five hundred, deaths forty-five. I know of no local cause to produce such a disease here; indeed, our place was never more healthy at the same season of the year, than at the time the above cases were introduced; and I believe it might have continued so, but for the *leaven* they imported."

My friend, Dr. R. H. Day, now of Baton Rouge, the capital of this State, resided in Pattersonville at the time of the epidemic there, and has given me an account of it under date of June 27th, 1854. Dr. D. confirms the statement of Dr. Grant relative to the first cases that appeared there, and concurs fully in his conclusions. Dr. D. says, "I have always before this stoutly denied and laughed at the idea of the communicability of yellow

fever; but the history of the late epidemic in St. Mary's parish has entirely changed my views upon the subject, and I think would have changed the most skeptical, had they witnessed what I did." He says the country was very healthy previous to the introduction of yellow-fever cases from New Orleans; says quarantine was established below Pattersonville on the 13th of August, which was after cases of the diseased were introduced; says the quarantine above Pattersonville, for the protection of Centreville and Franklin, on the same stream, was *rigidly enforced* after the disease broke out at the former place; yet we have learned from Drs. Wood and Lyman that yellow fever appeared at both places.

YELLOW FEVER ON THE RENTHROP PLANTATION.

This plantation is situated directly on Berwick's Bay, in the parish of St. Mary, La., and is about six miles from the town of Pattersonville, which was severely scourged by yellow fever. It is next to the last of a series of plantations, extending from Pattersonville down along the bay; Dr. Walter Brashear's being the last, and immediately adjoining Renthrop. I learn there were about *one hundred souls* on the place, of whom seven were whites, and the rest negroes. Of the whites, six were adults and one a child; *four* of these died with black vomit. The place has generally been very healthy, and continued so up to the outbreak of this epidemic. We are indebted to Mrs. R., a member of the Renthrop family, and wife of one of the most respectable physicians in New Orleans, for the following particulars.

Mrs. R. says she left the city for the plantation on the 16th of August, with one servant, a little negro girl, and a large quantity of baggage. This was in the midst of the epidemic at New Orleans. Two other servants, with all their baggage, followed her a few days afterwards. On reaching the quarantine station, near Pattersonville, she was stopped all night. On the next morning, she and her servant got into an open skiff, and were rowed through the hot sun to the shore, about three miles off. There she was met by her carriage, and taken to the plantation, some three or four miles further. Her servant had a paroxysm of fever the day before she reached home—none afterwards. The other servants reached the plantation a few days afterwards. Mrs. R. was a native of Louisiana; but neither she nor any of these servants had ever had yellow fever at that time. She says

no sort of precaution was taken to guard against the introduction of yellow fever through herself, servants, and baggage. There was no sickness on the place at the time. A short time before her arrival, a steamboat had landed for a few minutes at the place, and put off some bales of blankets and linseys, which were at once put into the store-room. Mrs. R. says she selected *a fair and windy day* to have these goods opened and aired. Says this was done about *three weeks before any sickness appeared* on the place. After being out one day, they were replaced in the store-room, and remained locked up until November following, when they were required for use. On carefully reviewing the circumstances, neither Mrs. R. nor the doctor think these goods had any agency whatever in introducing the disease upon the place.

Mrs. R. says, *towards the last of September* fever began to appear among the negroes on the place. They had a very intelligent overseer, who remarked that it was rather of an unusual type. The first two deaths were an infirm old man and woman, who had never been off the place. They occurred about the 1st of October. One patient had black vomit. The disease spread rapidly, and in a short time there were as many as forty cases under treatment. After prevailing some five or six weeks the disease disappeared. The epidemic did not prevail on any of the adjoining places. A young man, who lived at Dr. Brashear's, sat up all night with a sick friend at the Renthrop place, went home, was attacked with yellow fever, and died with black vomit, but did not communicate the disease to any person on Dr. B.'s place.

Mrs. R. says that during the epidemic, a negro boy was sent to the post-office in Pattersonville every day, but was never attacked with the disease. Mrs. R. herself was attacked very lightly; but the three servants she took from the city escaped entirely. The overseer died. Mrs. R. says she has since been informed, that two negro men from this place had been sent to Pattersonville several days during the epidemic there, to work on some property belonging to the overseer, and returned home every night, and that these negroes were among the first who were attacked on the plantation; but she cannot vouch for the fact. She mentioned the case of a young lady in the neighborhood who kept herself entirely secluded, but was attacked with yellow fever. No other case occurred in that family.

Dr. Rhodes knows of no *local cause* on the place adequate to

the production of the disease; but thinks it possible it might have been brought there by the wind, which blew from the direction of Thibodaux, a village twenty-five miles off, which was severely scourged. Dr. R. thinks yellow fever is *communicable*, and that it may originate in New Orleans.

So much for the facts at Renthrop. If the disease really be *transportable* and *communicable*, it is very strange that it did not break out on this place sooner than about six weeks after this lady and her three servants, none of whom had had yellow fever, with all their baggage, had arrived from the midst of the great epidemic in New Orleans.

YELLOW FEVER AT THIBODAUX, LA.

Thibodaux is a flourishing town, of about 1,600 inhabitants, situated on the bayou La Fourche, about thirty miles from where it makes off from the Mississippi river at Donaldsonville.

We are indebted to Dr. J. A. Scudday, a highly intelligent and experienced physician, for the following facts in relation to the late epidemic at this place. Dr. S. has practiced medicine here for the last fifteen or twenty years.

He says the first case of yellow fever that occurred in Thibodaux, last summer, was a man who had just come from New Orleans. He died at the Franklin Hotel, between the 10th and 15th of August.

The second was a French mechanic, who lived two squares off, remained closely at home, and had no intercourse whatever with the first case. He was attacked a few days after the first.

On the night of the 23d of August, nine or ten cases occurred in different parts of the town; one in the same square with the hotel, one two squares off, and another at least five squares further. None of these had any intercourse with the first cases. From that time the epidemic spread all over the town, and raged with great severity.

It prevailed upon many plantations in the vicinity, extending only five miles below, but above, with some exceptions, as high as Donaldsonville. It broke out on several plantations where strict non-intercourse was observed, and avoided others where no precautions were taken. Dr. S. says that when the epidemic was declared, he sent his family to a house four miles from town, where he slept every night, after practicing all day in the village. The greater part of his family, white and black, had never had

yellow fever. One of his servants was sent to town every day for marketing, and another went twice a week to attend to his house and furniture. Both of these contracted the disease, and were treated in the country without communicating it to the family. An unacclimated, benevolent friend of his, who had nursed the sick in town until he was nearly exhausted, went out to the doctor's house for the purpose of getting a night's rest. Before he got there he was seized with a chill, and went through a severe spell of the fever. No other cases occurred in the family.

Dr. S. says that five or six persons fled from the epidemic to the adjoining parish of Terrebonne, where they were attacked and some of them died, without communicating the disease in a single instance.

Dr. Scudday says yellow fever prevailed here epidemically in 1829, 1839, and 1843. He has seen sporadic cases here frequently, and also on the plantations around. Has no doubt as to its *originating* here, and *does not believe it is communicable.*

Treatment. He found a mild treatment most successful. Opened the bowels with Seidlitz powders, and kept his patients well sweated with warm teas, hot mustard foot-baths, etc. Condemns blood-letting and quinine. Sometimes prescribed *leeches*, but hardly ever *cups* or *venesection.* Says he treated about two hundred cases, and lost about twenty.—*Mem. given verbally. Aug. 3d*, 1854.

YELLOW FEVER ON THE COAST ABOVE NEW ORLEANS.

The banks of the Mississippi river, from its mouth to about 150 miles above New Orleans, are called "*the Coast*," and are occupied by a continuous series of sugar plantations worked by slaves. Some of these plantations have upon them as many as two or three hundred negroes. In several places along the coast, however, there are dense creole settlements, occupied by small landholders, chiefly French, who have been born and raised there. As a class, they are very ignorant, and support themselves by selling wood to the steamboats, and various articles to the city markets. We are indebted to Dr. J. H. Laughborough, a highly intelligent sugar-planter, who had not practiced his profession for many years before the late epidemic broke out in his neighborhood, for the following items relative to the disease as it appeared on the coast about fifty miles above New Orleans.

As preliminary, however, I should state the fact that in 1853, for the first time within the memory of man, yellow fever prevailed along the entire coast, omitting some places entirely, but otherwise sparing neither age, sex, condition, nor color.

Dr. Laughborough resides near one of those dense settlements of poor French people. The only local cause he points out was an extensive *batture* or *bar* opposite the settlement, which was not inundated this year as usual by the regular summer rise of the river. There was daily intercourse with the city, both by land and water. The disease broke out there about the first of September, and Dr. L. saw his first cases on the 13th. He says,—

"In regard to its origin, I can give you no information; but this I do know: that it first appeared among the poorer classes and most crowded families; that afterwards it would pass over these classes and attack the houses of the rich and comfortable. I have seen planters with every comfort and great attention to cleanliness about their houses and persons have yellow fever, while the families of their overseers and their negroes were exempt. I have seen persons who were much alarmed and never left their houses, have the fever and die; whilst those who were exposed as nurses, laying out and burying the dead, escaped entirely. I am an example of this myself. I never saw the disease before, was exposed in every way, and enjoyed good health during the whole period of the epidemic. My house was more than a mile remote from any case, and my wife never left home; yet she was attacked on the 20th of October. I saw a Frenchman, who was landed about two miles above me from a St. Louis boat. He then went to New Orleans and remained there one day. This was in August. He became alarmed, and finding no boat to bring him out of the city, he walked up here, was attacked the day after his arrival, and died on the third day. Although there were many in the house, and the settlement was almost as dense as one of your New-Orleans streets, there was no farther occurrence of the disease in that house or neighborhood until the month of December, and after we had several white frosts, when I saw several cases of black vomit there."

Dr. L. thinks, with the late Prof. Harrison, that the *specific cause* of yellow fever is as yet unknown. Says he saw no other type of fever prevailing with the epidemic *on the river;* but as far back as a mile, he saw cases of distinct intermittent, without any symptom of yellow fever. He saw Americans and French-

men, who were not natives of the place, and Irishmen "fresh from the sod," "walking about, free from contagion; while those born and raised in this parish were stricken down."

YELLOW FEVER AT PROVIDENCE, LOUISIANA.

Providence is a town of nearly 1,000 inhabitants, situated on the Mississippi river, seventy-five miles above Vicksburg, and nearly five hundred miles above the city of New Orleans. A considerable lake of the same name lies back of the town, not quite a mile distant. Yellow fever never prevailed at this place before; but in the summer and autumn of 1853 it was terribly scourged. We have already seen the testimony of Dr. Ball, who visited the place in the midst of the epidemic; but late in December Prof. Riddell, on behalf of the Sanitary Commission, went up there and obtained much additional information, the main points of which we shall now endeavor to give. Dr. Riddell took down the testimony of three physicians and nine unprofessional gentlemen. Of the physicians, Dr. J. G. Wyley does not express an opinion as to whether the disease originated at the place, or was imported. Dr. B. H. Bowman is decidedly of opinion that it originated there; and Dr. N. Houghton is "rather inclined to the opinion that it originated with us and was not imported." Of the citizens mentioned, five thought it originated there, and two that it was imported from New Orleans.

All the witnesses agree that the disease was not communicable when carried out of the town to the neighboring plantations. Numerous instances are cited to prove this fact. The first case of death with *black vomit* was the wife of Judge Selby, who lived in a retired part of the town. He says,—

"My wife had not, to my knowledge, been exposed to bales of goods or any thing of the kind coming from New Orleans, previous to her sickness and death. * * * I am as certain that Mrs. Selby did not *catch* the fever of anybody, as I am of any thing of which I am not absolutely sure; in other words, that is my firm belief." Mrs. S. died on the 2d of September. Her physician, Dr. Larche, died subsequently of yellow fever.

I myself am able to give a little testimony in relation to the *very first case* of yellow fever that occurred in the town of Providence, and shall proceed to do so for the benefit of those who attach importance to the effect of imported cases.

On the 8th of August, when the epidemic was raging in New

Orleans, I was called on by Mr. S. W. Odell for a prescription, in case he should take yellow fever on his journey up the river, stating that he had just come to the city on a hasty visit, and would leave that evening or the following. I gave him some general directions, and advised him to leave the city as soon as possible. He informed me afterwards, that he went up the river on the steamer Memphis; that the clerk of the boat, an intimate friend of his, was attacked the day they left the city, and died, I think he said, about the time the boat reached Providence. Mr. Odell attended him closely during his illness. It appears that Mr. O. put up at the hotel in Providence on the 12th August. Dr. Bowman says he was called to see Mr. Odell on the 14th of August. Found him very much *frightened*, but did not think there was much else the matter. Mr. O. told me he had made Dr. B. promise to follow the plan of treatment I had laid down, for which he had provided the necessary medicines; but that the doctor did not comply with his promise. Says he had a long and severe spell, but *was convalescent and sitting up in his room* before any case occurred in the town. Dr. Bowman insists upon it that Odell never had yellow fever at all, but admits that "on the 8th or 9th day he had a copious hæmorrhage from the bowels." Now, for my part, I have no doubt that Mr. Odell *did have yellow fever;* and the importationists are entitled to the fact. And, farther, Dr. Bowman says he was called on the 28th August to see Mrs. Kimble's child, who was sick at this hotel. He found her laboring under "*distinctly intermittent fever;*" but, nevertheless, she died on the third day "with some appearance of *black vomit.*" This was on the 31st August. On that same day, her mother, Mrs. Kimble, was attacked with what Dr. B. calls "*chills and fever.*" On the second and third days she had distinct paroxysms of "chill and fever," and then improved so decidedly that he considered her "nearly well;" but the second day afterwards "she exhibited some appearance of *jaundice*, and on the next day she also died." Dr. B. considers neither of these cases yellow fever. This room was quite near to Odell's, in the same house, and persons going to Mrs. Kimble's had to pass by Odell's room. Mr. O. told me, that after he was convalescent he thinks the little girl came into his room once. It is quite certain that Mrs. Selby had not been to the hotel during the illness of any of these persons. She was attacked on the same day with the little girl, August 28th. On the same day Dr. B. says he was called to see a laboring man named Feeley, who

had been "taken sick *fourteen miles in the country*, with what was called congestive fever." We are not told whether he died or not, nor at what house he was sick.

We are told that during the month of August, steamboats landed at Providence nearly every day, but stayed only a short time. On the 24th, the D. Stacey, having met with an accident, stopped there six hours: "some people went on board of her," but no fever is mentioned. On the 9th August, the Swamp Fox stopped four hours, and put off freight. "She had fever aboard." Other boats put off freight at Providence.

In respect to *local causes* of disease in Providence, Judge Selby mentions the following: 1. "During the winter there was a large quantity of sawdust spread on the streets in some portions of the town. In the summer this was mixed with the mud, and produced a very disagreeable smell. 2. In certain parts of the town there are very filthy spots; for instance, I know an Irishman who has a cow and calf, a horse and hog, and they all live pretty much in common with the family. 3. The river has been considerably lower this season than is usual, and thus a greater depth and larger surface of the bank has been exposed than is common."

Mr. Hillman mentions the case of a Mr. Tucker, who lived on the river, seven miles above Providence; he staid closely at home and no boats stopped at his place. He was a very timid man and avoided every exposure to infection; yet he was attacked in October, and died with black vomit. Judge Selby thinks there were about 330 cases of yellow fever in Providence, of whom about 165, or one-half, died.

YELLOW FEVER AT VICKSBURG, MISSISSIPPI.

Vicksburgh is a city of about 4,000 inhabitants, and is situated immediately on the river, about 400 miles above New Orleans. This place suffered from a severe epidemic of yellow fever, for the first time, in 1841; a light one again in 1848; and a very severe one in 1853. It has kept up a sort of quarantine ever since 1847, whenever yellow fever was prevailing below; but it was generally considered a mere farce.

In 1853, it was enforced from about the 23d of July; but in a short time it was abandoned, because it was found that the epidemic had broken out, and was prevailing in the city. We are indebted to Prof. Riddell, who, as before stated, went up the river on behalf of the Sanitary Commission, for such facts and memo-

randa as are before us. Dr. Riddell obtained the testimony of two unprofessional gentlemen, viz. Mr. W. Rogan, proprietor of the Washington Hotel, where the first case occurred in private practice, and the Rev. C. K. Marshall, an old resident of the place, who devoted much time and attention to the sick. The physicians who testified were, Dr. G. K. Burchette (physician to the Hospital), Dr. A. L. C. Magruder, Dr. Thos. J. Harper, and Dr. F. White; the latter not a practitioner at the time. Dr. Burchette seems to have attended the first three cases of the disease. He says the first case was a man who was direct from New Orleans. He was taken to the City Hospital, and died; but the date of his death is not given. It must have been in the latter part of July; as Dr. B. says his second case was a man at the Washington Hotel, who died on the 1st of August. These two places are about a mile apart, and Dr. B. says, "*there was no communication between them.*" He says case second had just *come down the river*, from the Mississippi Swamp, near Silver creek, where he had been examining lands. He died with *black vomit.* Dr. B. thinks he contracted the disease in Vicksburg; but I am disposed to think he may have contracted it where he had last been, from the fact that I, myself, when in Vicksburgh, in October, saw a case of black vomit at the hospital, in a man who said he was taken sick in the Swamp, and had come to Vicksburg for relief. The third case was in the hospital, and was just up from New Orleans. The fourth case was in private practice, a highly respectable lady who lived on the hill, remote from the river. Some persons supposed she contracted the disease from examining some goods that had just been brought up from New Orleans by a Jew peddler; but Dr. B. thinks *it originated there.*

Dr. Magruder thinks the disease was imported from New Orleans, by means of steamboats bringing persons and goods.

Dr. Harper thinks the disease originated in Vicksburg, and "*was not imported.*"

Dr. White believes the disease is communicable.

I have recently received a letter from Dr. Thomas Anderson, the oldest, and one of the most respectable physicians of the place, in which he expresses no doubt as to the *domestic origin and non-communicability of the disease.*

YELLOW FEVER AT JACKSON, MISSISSIPPI.

This is the capital of the State. It is situated within half a mile of Pearl river, and about fifty miles from Vicksburg, with a continuous railroad between. Yellow fever never prevailed here before, though cases of the disease have repeatedly been introduced from Vicksburg, during the prevalence of epidemics there. No account of this epidemic has been published by any physician of the place. On inquiry, I found it generally admitted that the *first* case was a man who had recently been to Vicksburg; and the *second* occurred very near to the house in which he died; but the *third* case was attacked *about a quarter of a mile distant, and had no sort of communication whatever with the first or second.*

The Rev. C. K. Marshall gave Prof. Riddell an account of the manner in which the disease commenced and progressed. He thinks it was by *infectious communication;* but Dr. J. S. Gaulden, of New Orleans, a highly intelligent physician who was sent up there by the Howard Association, inquired carefully into the matter, and came to quite a different conclusion. He thinks the epidemic originated there, as it did everywhere else, from *the combined influence of local and atmospheric causes.*

I visited Jackson myself on the 26th of September, and found the community laboring under a terrible panic. There were then some forty or fifty cases of yellow fever in the place. Only four of the resident physicians were on duty. One was sick, and the rest had removed from the scene of danger. None of those remaining had any experience in the treatment of yellow fever, and consequently suffered much embarrassment at first. Dr. W. B. Williamson, who had seen a good deal of yellow fever in New Orleans, was there, kindly affording all the aid he could to the sufferers. Dr. J. S. Gaulden, of New Orleans, with six experienced nurses, arrived on the 26th of September, being sent up by the Howard Association. They remained till the end of the epidemic, and were of essential service to the sick. Dr. Thomas Meux, of New Orleans, also came up and volunteered his services, which were gratefully acknowledged. A large portion of the inhabitants fled as soon as the epidemic broke out, leaving probably not more than six hundred in the city. I have not seen a full list of the deaths; but one of the newspapers stated that from the 1st September to the 3d November, there were

eighty-one deaths from yellow fever, and twenty-one from other diseases.

I spent my time mostly at Clinton, a village on the railroad, ten miles from Jackson. Several persons who had been exposed to the epidemic in Jackson, took the disease after returning to Clinton; but did not communicate it in a single instance. There were also several cases carried to the neighboring village of Raymond, with like results.

YELLOW FEVER AT PORT GIBSON, MISSISSIPPI.

I am indebted for the following account to Dr. R. G. Wharton, who has practiced medicine in Grand Gulf and Port Gibson for the last twelve or fifteen years:—

"The month of August last was quite healthy, there being no prevailing type of disease; and we had good reason to congratulate ourselves on our inland position, while the epidemic was decimating other places.

"On the 15th of August, a German shoemaker, Mr. Immler, of our village, returned from New Orleans, where he had remained from the morning of the 11th to the evening of the 12th,—thirty-six hours. He arrived at Grand Gulf on Sunday night, the 14th, feeling unwell. However, the next morning (15th) he walked to this place (eight miles), where he arrived, at 12 o'clock M., quite ill. I saw him at 9 o'clock that evening, when I found him with all the marks of yellow fever. I diagnosticated yellow fever, and mentioned his case to a number of persons. I watched him closely, till his death, on the 17th: he had no black vomit.

"On the evening of the 26th, just nine days after, I was called to see Mrs. Hall, an old person who resided in a tenement adjoining the room where he (Immler) died, and who had visited him during his illness. I pronounced it yellow fever.

"On the next evening (27th) I visited Charles Falloon, his wife, and the widow of Immler.

"Falloon and wife occupied a room adjoining the one in which Immler died; and Mrs. Immler occupied the bed and room where her husband died: they were all constant attendants on him during his illness. At the request of one of our town council, I invited Dr. Abbay, who was familiar with yellow fever, to see the cases with me. He confirmed my diagnosis.

"Early the next morning a great number, perhaps nearly half, of our citizens left precipitately, for the plantations around.

"Early in the morning of this day (the 28th), a note from one of our physicians was sent to my house, requesting permission to see these cases which had been pronounced yellow fever. Not being at home, a friend promptly replied for me, that I would be glad that all the members of the profession should visit the cases and see for themselves. It so happened that I did not see any of the medical men till late in the day, owing to my engagements; and was much surprised to learn, that after a careful examination and consultation, not one of them (five) believed it to be yellow fever,—in fact, were so perfectly confident that it was not that disease, that the minds of our people became almost perfectly quieted on the subject in the course of a few hours. After a searching examination made during several days, they all continued to agree that it was only the ordinary *bilious fever* of the country. A violent reaction now occurred in the community against Dr. Abbay and myself, on account of the diagnosis we had made; and if the disease had spread no farther, it would have been the opinion of nearly every person that there was no case of yellow fever, and that we had humbugged the whole community most egregiously.

"Other cases were now occurring in this same house every day, till every person in the house (eleven or twelve) was attacked. I now began to learn of other cases in the neighborhood reported as "bilious fever," and not considered serious, till Friday, 2d September, a death from *black vomit* occurred in the case of a little boy living nearly opposite the infected house, who had frequently visited the sick rooms. The next day another death of these "*bilious fever cases;*" and then, at length, the whole community was at once painfully aroused to a sense of their real danger.

"The foregoing facts, I think, favor in the strongest manner the idea that the disease is communicable from one person to another under certain circumstances. They constitute positive testimony in favor of its communicability, and no amount of negative testimony can outweigh one positive fact. I will mention one case, for the truth of which I will vouch, though it did not fall within my personal observation.

"A mechanic of our town was working about thirteen miles from this place when the disease broke out; and after it had become general, he left the plantation where he was working, contrary to the earnest desire of his employer; came to Port Gib-

son, spent one night in town, returned to his work, and in a few days sickened and died, without black vomit. His physician did not believe it to be yellow fever, and of course did not treat him for it, as he had never before seen a case. However, a lady, a member of the family, in two or three days after his death, sickened, was treated by this same physician, and on the fourth day died of black vomit, to the great astonishment and mortification of the physician; who now acknowledges that the first case was also yellow fever, and that he had committed a great error in his diagnosis. This medical gentleman had called in a neighboring physician to visit the lady, in consultation; and in a few days both the doctors sickened; the first-named died of black vomit, and the other had a very narrow escape. The disease now spread till, I think, every white person and about half the negroes, both on that and an adjoining plantation (between which there was unintercepted communication), were attacked, and were seen by several physicians, two at least from New Orleans, who pronounced it yellow fever.

"No other case occurred in that neighborhood, as all intercourse was suspended between these infected plantations and the neighboring ones.

"I will now mention two cases where the disease did not spread from the sick. Mr. T. H. Wade, one of our citizens, remained in town a few days after the report of yellow fever being here had been circulated, and visited some of the sick. He went to the house of his brother-in-law, thirteen miles back in the piney woods, sickened in a few days, and died of yellow fever. I visited him a short time before his death. The disease did not spread among the attendants. A lady residing in this county visited Grand Gulf, and stopped at the house of a friend where there was a case of yellow fever; in fact, she went into the sick-room, and sat by the bedside of the patient. This was one of the first cases of yellow fever at Grand Gulf; and it was not recognized there as such till several deaths from black vomit had occurred; yet it was no doubt a case, as all who were but too painfully familiar with it, afterwards acknowledged. This lady went home, about seven miles, sickened in two or three days, and died of black vomit; yet there was not another case on the plantation, nor among her attendants and physicians.

"The origin of the disease is clear enough in the above cases; but here is one not quite so obvious at first. On the 3d of

September (mark the date), when there had been but two deaths, and when the disease was evidently, as yet, confined to the infected house and its immediate neighborhood, a lady friend, who was a guest of mine, was attacked suddenly with the epidemic, without having been within a quarter of a mile of the infected district. Here I have good reason to believe that she took it from my clothing, as I usually came directly home from the sick several times a day, and she often met me to inquire after them, and I used no precaution whatever in changing clothes, etc. I have given you a brief account of the first cases of yellow fever as it occurred in Port Gibson, and in which alone it was possible to trace its origin; as it spread rapidly in a few days over the whole town.

"I think you will agree with me in the conclusions,—

"1st, That the epidemic, as it appeared here, was evidently communicable from one person to another, under certain favorable circumstances: what those are we cannot positively affirm, though it seems that it is much more likely to spread in a town than in the country;

"2d, That it may be conveyed by the clothing on the person of one who is himself uninfected."

I may remark that Grand Gulf is a small town, immediately on the Mississippi river, between Natchez and Vicksburg. It was severely scourged by the epidemic of 1853, the first time yellow fever ever prevailed there. The town of Rodney, about thirty miles below, was visited by epidemic yellow fever in 1846 and 1847; but, strange to say, it escaped in 1853, notwithstanding five or six cases of the disease were introduced. In the country, about six miles back of Rodney, the epidemic broke out at the house of Mr. Israel Coleman, from which it appeared to spread to the neighboring plantations with terrific violence. I find in the New Orleans Medical News and Hospital Gazette for June and July, 1854, a very interesting account of the epidemic in that neighborhood, by Dr. A. P. Jones. The author seems to be decidedly of the opinion that the disease was brought either from Port Gibson or Natchez to Mr. Coleman's place, and from there spread through the neighborhood by *infectious communication*. This is the *leading idea* intended to be illustrated by Dr. Jones' narrative of the course of events; but, in his efforts to establish its truth, he overdoes the thing completely, and proves

too much. He would make it appear that yellow fever is the *most highly infectious and communicable disease in the whole catalogue of nosology.* Take, for instance, the following:—

"A Jew peddler, recently from Port Gibson, was seized with fever while on his rounds, and evidently infected three families. He was literally driven from one to the other till he got to Heath's, where, being too ill to get back to town, he was put into a back shed-room of the dwelling, and died of black vomit on the 10th of September. So much were the people of the house alarmed, that the corpse was hurried into a coffin without dressing; his pocket-book of papers, purse of money, and every thing on his person, were buried with him. The weather-boarding and gable-end of the room were knocked off to let in air and rains; the bedding and furniture were burned, only a few pieces of the last were allowed to lie out one or two hundred feet from the dwelling for *two weeks:* meantime, no one sickened. At the end of two weeks, the bed-clothes were brought in, boiled, wrung out, and dried about the house, Mrs. Heath seeing to it. Within *eight days* from that time, and about *twenty* from the burial of the poor peddler, Mrs. Heath, her husband and son, the woman who washed the clothes, and several other servants, sickened: the two first died, and the others recovered.

"At a widow Perkins's, where this peddler stayed the night before he came to Heath's, and was very ill all night with fever and vomiting, but well enough at daylight to mount his pony and ride a few miles, a little negro boy was seized with fever *sixteen days after the peddler left.* He died with black vomit and convulsions. *Sixteen days from the time of his death,* his mistress was taken, and died similarly. I neglected to mention that the peddler's *pack* was left, and remained all this time in the dwelling. There were other cases, which recovered. The well were sent away, but returned after the frost of the 25th of October; and several of them had fever lightly."

Now, to my mind, the facts here stated appear to prove *quite the reverse* of the doctor's conclusion; *i. e., that the disease originated in the locality, and not from infection introduced by the peddler.* If Dr. Jones's conclusion were correct, yellow fever must be a far more infectious disease than small-pox, or any other that is known. The precautions here used would have prevented the spread of small-pox, measles, or scarlatina, perhaps in a majority of instances; and if not, these diseases would have

broken out sooner than Dr. Jones's yellow fever did. The time between exposure and attack, in his cases, was much longer than is generally claimed by the advocates of the infectious communicability of yellow fever.

I regret that I have not time to examine Dr. Jones's paper more fully, as it is well written, and very interesting.

At Natchez, on the Mississippi river, three hundred miles above New Orleans, the epidemic commenced about the middle of July, and prevailed with unprecedented violence for more than two months. Indeed, cases were seen there as late as December. This city has maintained a quarantine against yellow fever ever since 1841; yet I have been informed by some of the most respectable physicians of the place, that since that period scarcely a summer has passed without the appearance of some yellow-fever cases there, either originating spontaneously, or brought from other places. There was no *epidemic* till 1853; but very nearly as long intervals between epidemics there, have been observed before, when no quarantine was in operation.

I have tried in vain to obtain a history of the late epidemic at Natchez. The only thing I have seen on the subject, was a letter from Dr. L. P. Blackburn, physician to the Natchez Marine Hospital, in reply to interrogatories sent out by a committee of the Louisiana Legislature. To the question as to the *origin* of yellow fever, he replies,—"Yellow fever is undoubtedly of African, West Indian, or other tropical climates, generated in the hottest season of the year, and transmissible by its infectious and contagious qualities, to other places where it would never have originated." In reply to the question, "Was the epidemic of last year contagious; and was it imported into New Orleans?" he says, "*I give decided and affirmative answers.*"

YELLOW FEVER AT YAZOO CITY, MISSISSIPPI.

Yazoo City is a flourishing town of some 2,000 inhabitants, situated on the Yazoo river, about eighty miles above its mouth. Steamboat navigation to this point is hardly ever interrupted, and the intercourse with Vicksburg is nearly constant throughout the year. Yellow fever never prevailed as an epidemic at this place before; but in 1853 it was most terribly scourged. I have tried in vain to get, from the physicians of the place, an account of the

late epidemic. I have been informed by Capt. Powell, an intelligent gentleman who was there at the time, and lived in the house of Dr. W. J. Leake, one of the most respectable physicians in practice, that the first case resembling yellow fever occurred in a boatman who had very recently come *down the river* on a trading-boat. He had not been near any place where yellow fever was prevailing, nor seen any person laboring under the disease. He was attacked with fever a few days after coming to Yazoo City, and died, but did not throw up black vomit. Dr. Leake attended him, and had some suspicion that the case was yellow fever, but did not publicly pronounce it such. This occurred about the first of September. A few days afterwards, a saddler by the name of Cobbett, who lived in a different part of the city, and quite remote, was attacked with fever, and died with *black vomit.* This man led a retired and sedentary life, and had no communication whatever with the previous case, or with steamboats arriving from below. Capt. Powell had been engaged on one of the steamboats running to Yazoo City, and says, no case of yellow fever had been brought there previous to this time. The third case was a Mexican, who lived in the neighborhood of Cobbett. His death confirmed Dr. Leake's apprehensions that yellow fever was in the city. In a few days the epidemic exploded over the whole city, and raged with terrific violence for more than two months. Sporadic cases continued to occur after white frost had been seen. In conversing with many persons who were privy to the facts relative to the epidemic at Yazoo City, I have heard no one attribute it to an *imported infection.* Soon after the epidemic broke out, many of the inhabitants fled the city; and some of them were taken sick and died at Benton, ten miles in the interior, and other places, *without communicating the disease in a single instance.*

Very soon after the epidemic broke out in Yazoo City, cases began to appear at *Greenwood*, a village of about 300 inhabitants, situated at the head of navigation on the Yazoo river, one hundred and fifty miles by water above. I am informed by an intelligent gentleman, who resides at Greenwood, that two small steamboats plied regularly between that place and Vicksburg, making one trip a week, until the epidemic broke out. He says, the first case that occurred at Greenwood, had been a deck-hand on one of these boats, and had left her a few days before he was attacked. He died with *black vomit.* The next cases occurred among the offi-

cers and hands of that boat, whilst lying at Greenwood. After three or four cases had occurred, the inhabitants became alarmed, and about one-third of them fled to the country. He says, a number of the fugitives were attacked in the country, *but did not communicate the disease in a single instance.* This fact is confirmed by an intelligent physician, residing at Carrollton, about twenty-five miles distant, who told me he had seen some of these cases. I learn there were about 17 cases of yellow fever in Greenwood, and 9 deaths.

YELLOW FEVER IN THE STATE OF ARKANSAS.

Napoleon.—The only place in this State that was scourged by the late epidemic, was the town of Napoleon, situated at the mouth of the Arkansas river, two hundred miles above Vicksburg, and the same distance below Memphis. This is also the highest point, on the Mississippi river, at which the epidemic prevailed. The locality is a low, narrow, triangular, strip of land, having the rivers mentioned on two sides, and a sluggish bayou in the rear. I have not been able to obtain an account of the epidemic at this place.

Little Rock.—This is the capital of the State, and is situated on the Arkansas river, about two hundred miles above the mouth. Dr. G. D. Sizer, of this place, informs me, that "*no case of yellow fever was brought to Little Rock, and none originated there.*" He states farther, that navigation of the river was suspended, from low water, about the last of July, and remained so till the following March. The summer and fall there were as healthy as usual, presenting only the ordinary types of fever.

Columbia.—This is quite a flourishing town, situated on the Mississippi river, sixty miles above Providence, and the same distance below Napoleon. The locality is high, and much better than either of the towns just mentioned. I called there myself in May last, and obtained the following facts from Drs. R. and J. Holsen, two intelligent physicians, whom I had the pleasure of meeting. Their experience at this place extends back over a period of fourteen years. They say they never knew a case of yellow fever to *originate* here, but upon several occasions have known cases to be brought by the steamboats from below, and

die, without communicating the disease. The town was healthier than usual in 1853. Dr. R. Holsen is not in practice now, but Dr. Joseph H. is. The latter says, the first case of yellow fever brought to Columbia this year, was in the month of June. It was an Irishman who came up from New Orleans on the steamer J. M. Relf, and was left at the wood-yard just above town. He was taken to town, and placed in the house of a family that had never had yellow fever. He there died with *black vomit*, but did not communicate the disease to any person. Dr. H. says, *six cases* of yellow fever were put off the steamboats at Columbia, and four of them died. *They were nursed and attended like ordinary diseases, and no one contracted yellow fever from them.* Nearly every passing steamboat called at Columbia. The H. D. Bacon stopped about the 1st of September, having twenty cases of yellow fever on board. The captain and chambermaid were attacked whilst the boat was wooding here, and both of them died farther up the river. Nearly every boat from New Orleans had yellow-fever cases on board. *The people of the town visited the boats as usual, but no one caught the disease.*

The facts presented at this place are certainly very remarkable. If this fever was extended up the river by *infectious communication*, why did this fail to take effect at Columbia? We have seen that the epidemic prevailed at Napoleon, sixty miles above; but when we go two hundred miles, by the river, higher, and reach Memphis, all causes failed. For, from a communication published by Dr. George A. Smith, Physician to the Memphis Hospital,* it appears that not only was Memphis entirely free from yellow fever during 1853, but that the health of the place, from May to August, inclusive, was remarkably good. Sixty-two cases were landed from steamboats, and brought to the hospital; they were distributed through all the wards; but in no single instance was the disease communicated to nurse or patient.

YELLOW FEVER IN THE STATE OF TEXAS.

The late epidemic prevailed with great fatality at the sea-port towns of Galveston, Houston, Indianola, and Lavacca; and also at several interior villages. I have not been able to obtain a full history of the epidemic at Galveston; but happening recently to meet with Dr. W. R. Smith, who has resided at that place for ten years past, I got from him the following facts and opinions:—

* N. O. Med. and Surg. Journ., Jan. 1854.

Dr. Smith thinks *yellow fever is one of the varieties of endemic malarious fever, and originates in Galveston.* Says some cases were imported from New Orleans before the epidemic broke out last summer; but there was nothing like a "*catenated connection*" between these cases and those that appeared amongst the resident inhabitants. Says that quarantine was attempted to be enforced, "*but in a bungling manner;*" in fact, that "*it was a mere farce.*" Dr. Smith resided here in 1847, and thinks the epidemic of that year originated as this did, *spontaneously.* He speaks in the highest terms of *quinine* in yellow fever, but not as an *abortive* remedy; gives it in small doses, say from three to five grains, in combination with as much calomel or blue mass, and half a grain of ipecac. every two or three hours. He is strongly opposed to bleeding and cupping. Thinks the pains of the head, back, and limbs, are of a nervous character, and to be relieved by liberal doses of morphine. Thinks he has seen some benefit from creasote in *black vomit;* but considers this condition as generally *desperate.*

YELLOW FEVER ON THE SABINE RIVER.

Mr. Henry Force, an intelligent gentleman who resides at the village of Madison, on the Sabine river, thirty-five miles above its mouth, informs me that several cases of yellow fever were brought from Galveston into his neighborhood last summer; and *two of them died, without communicating the disease, although no precaution was used to prevent infection.* Says that a village called Sabine City, situated at the mouth of Sabine river, and containing about 200 inhabitants, had constant intercourse with Galveston through small sailing vessels. Some cases of yellow fever were introduced, but the disease did not spread. No case of yellow fever originated in either of these towns.

YELLOW FEVER AT INDIANOLA.

The following is the substance of an interesting communication forwarded to the New Orleans Sanitary Commission, by Dr. J. Henry Brown, editor of the "Indianola Bulletin," under date of Nov. 11, 1853:—

The town of Indianola is situated on Matagorda Bay. Locality on shells and sand;—Water used from wooden cisterns and

shallow wells;—No disturbance of the soil mentioned;—Some small ponds had been filled up;—Some small salt marshes near. Observed nothing remarkable in the meteorology of the year.

Indianola contains about 1,000 inhabitants;—number of deaths from yellow fever this year, 106;—rate of mortality about 1 in 3 attacked.

First Cases.—The first cases were landed here sick from a New-Orleans steamship, about the 30th of August. The six next cases were from the same source, from the 2nd to the 10th of August. There had been at least *six* or *eight* landed from New Orleans, before a case occurred among the residents here. There had been but two deaths in the place for nine months previously. The first cases of yellow fever here, are traceable to direct intercourse with New Orleans, "*without a doubt.*"

As to cases that originated *spontaneously*, without even the suspicion of intercourse with other cases of the disease, "*there were none observed here;*" but at *Salina*, a village on the Bay, fifteen miles below, several cases occurred, apparently of that kind. But they had been amongst our citizens, and had fled here from the epidemic; and they came twice a week to within a few hundred yards of the New-Orleans steamers. In Indianola the disease was easily traceable from one person to another, and from family to family. The first cases progressed in the course of the prevailing winds, viz. the southeast.

At first the disease prevailed among the lower classes, or those exposed by intemperance or night air; but in time reached the best unacclimated persons. The old citizens of five or six years' residence, suffered comparatively little.

The symptoms, progress, duration, and termination of the disease, were generally very similar to the reported cases in New Orleans.

Dr. B. thinks that full half the fatal cases had black vomit. Many turned yellow. Many bled at the nose; and these generally died.

The fevers of the time generally assumed the type of the epidemic, though there were exceptions. Several infants had other symptoms, some died with congestion of brain. The time from exposure to the infection to the attack of fever, was generally from *three* to *eight* days—rarely longer; one case in the country, however, said to be *five weeks*, and two perhaps ten days.

Dr. Brown has seen yellow fever before at Indianola, October and November, 1852.

Second Attacks.—Not one well-authenticated case;—two or three doubtful. So few of the unacclimated attendants upon the sick escaped the disease, as to form only an exception to the rule.

In the fall of 1852, a few cases of common yellow fever occurred here in connection with *dengue;* but three persons were first landed with it from New Orleans, and died. "The *dengue then* seemed to become yellow fever."

The town of Matagorda, forty miles up the Bay, enforced *rigid quarantine*,—has a population of eight hundred, and did not have a case of yellow fever.

Lavacca, ten miles up, had no quarantine. Cases were carried there, and the disease became worse than anywhere on this coast.

Victoria is forty miles interior, with tri-weekly stages plying between. Eight cases were carried there; and then cases occurred, first among the doctors who attended the sick. In Lavacca, four doctors died early in the epidemic. Dr. Brown thinks, from what occurred over there, "no sane man can doubt the transmission of the disease from town to town, family to family, and person to person. There were very few exceptions, and they all explainable."

YELLOW FEVER AT HOUSTON.

We are indebted to Dr. Ashbel Smith, a name identified with Texan history, for the following portion of a highly interesting account of the late epidemic at Houston.

"The city of Houston is situated on the south side of Buffalo bayou in 29° 45″ north latitude, and 18° 29″ west from Washington. The country for many miles round about is a flat diluvion of broad, open prairies, furrowed with numerous small water courses, which are skirted with narrow belts of timber. Buffalo bayou flows in a deep, narrow channel, between elevated banks. The slight tides of the Gulf of Mexico are felt at Houston; they are more controlled by the winds than by general tidal causes. The bayou has scarcely any current, except as an immediate consequence of heavy rains. During most of the summer

and autumnal months, its waters are nearly motionless. From the narrow belt of timber fringing the bayou, there stretches off to the south an open prairie, presenting nearly a dead level. Partly on the border of this prairie and on land formerly timbered, is situated the town of Houston. The soil of the prairie is a darkish, tenacious, argillaceous earth; that of the timbered land is a loose, yellow, sandy loam, formerly covered chiefly with oaks, pines, magnolias, etc.

"The prevailing summer winds are from the southeast; they come from the Gulf, and are considered healthy.

"Houston is distant by water about ninety miles from Galveston and about five hundred from New Orleans. To the Gulf in a direct line, it is about fifty miles. Its ordinary population at the present time numbers about 7,000 souls.

"On the 1st of January, 1837, the site of the town presented only a single pine-log cabin; being selected as the future seat of government for the then republic of Texas, population flowed in rapidly, buildings were erected with great dispatch, mostly of a temporary description, and all of wood. In less than twelve months, it must have contained more than two thousand residents, besides a numerous concourse of strangers visiting the capital of the new republic. For the first few years it was severely scourged with malarial fevers, running readily into a congestive or pernicious form; latterly it has enjoyed, and I believe deservedly, a reputation for great healthfulness.

"It has experienced outbreaks of yellow fever, in 1839, 1844, 1848, and 1853.

"I have not lived in Houston since the spring of 1839, until the present year. I went to Houston in consequence of the outbreak of yellow fever, and remained there during the epidemic period.

"The present year has been marked by the following peculiarities: an unusual prevalence of northerly winds during the warm season instead of the customary south and southeasterly breezes; and by a highly surcharged electrical condition of the atmosphere. During July, August, and September, electrical discharges were often visible during the whole night, with only momentary intervals, in every quarter of the horizon. The rains of summer are always partial in these districts of Texas, and during the present season, several localities suffered from droughts; but, judging from general observation, there fell, I

believe, the usual quantity of water. Nor do I learn that there was any unusual aggravation of or exemption from disease in this or other sections of the State, the epidemic now in question alone excepted.

"I find it impossible to ascertain with exactness the commencement of the epidemic; the first cases occurred in the latter part of August, and the first death announced as from yellow fever in the city report of interments, took place on the 29th of that month. I arrived in Houston on the 4th of September, and saw, almost at the moment of arrival, a man in the last stage of the fever, sinking under an uncontrollable dripping of blood from the nose. The ecchymosed blood settling around the mosquito bites on his face and arms, presented the appearance of numerous petechiæ. He survived about two days. Several cases existed in different parts of the city, and deaths were daily reported. The number of new cases continued to increase pretty rapidly for two or three weeks, when the epidemic, as it afterward appeared, arrived at its height, and continued at this pitch of severity for about a month. In the latter half of the month of October, on the approach of cold weather, and probably, too, in a good degree from the diminution in the quantity of highly susceptible material, the number of new attacks underwent a pretty regular and rapid decrease. Light frosts occurred in the last week of October, which were followed by an almost total disappearance of new cases; but this was only temporary; for occasional attacks occurred for about a month afterwards.

"There are no means of obtaining even a close approximation of the whole number of cases which occurred;—I feel confident that on some few days, as many as fifty, or possibly a hundred, new attacks took place within twenty-four hours. It is worthy of remark that although the number of fresh attacks seemed to vary greatly at different times, yet the daily mortality preserved a great uniformity, averaging during the height of the epidemic, about six every twenty-four hours. The largest number reported any single day, was nine.

"The disease did not extend beyond the inhabitants of the city and its suburbs: a circle of two miles and a half radius, from the court house as a center, would embrace every case in the vicinity of which I have heard mention. Of all the cases which I saw in the remoter districts of the suburbs, I could trace a visit

to the town as a possible cause of the origin of the disease. The surrounding country enjoyed its full average healthfulness.

"The small town of Richmond, twenty-eight miles distant from Houston, on the west bank of the Brassos, was severely scourged with yellow fever; the plantations in the vicinity were wholly exempt.

"The small town of Cincinnati on the Trinity, one hundred miles distant from Houston, was also visited by yellow fever.

"Lynchburg, otherwise called San Jacinto, situated at the confluence of San Jacinto river and Buffalo bayou, about midway between Galveston and Houston, and being a daily landing for the steamboats, presented some suspicious cases of disease; but none were identified as yellow fever, except in persons who had visited Galveston.

"You doubtless have the history of the epidemics at Galveston, from some one of the resident practitioners.

"With the exception of the above-named places, all the region of Middle Texas, both villages and country districts were free from any suspicion of the epidemic. Cases, indeed, occurred in various places within the range of country alluded to, which terminated fatally with black vomit; but every case was traceable directly to exposure in one of the infected towns. Nor did such exported cases give rise to the disease under any circumstances; so far as my information extends. My inquiries on this point have been numerous and careful.

"All persons, whatever their age, place of birth, sex, color, condition or occupation, were liable to the disease; such persons only excepted, as were acclimated by having had a previous attack. I have seen children at the breast present the disease, with its most unmistakable characteristics. I saw one patient fourscore and upwards. The young and robust contract the disease more readily than those persons who have reached or passed the middle period of life. We do not have many opportunities to make satisfactory deductions in reference to the comparative liability of the creole population; but, as far as my experience goes, creoles are as liable to epidemic yellow fever as persons from more northern climes. It does not spare at all the creole Mexican; and, in a former epidemic, I saw a family of creole whites, who had never visited the regions of snows, seven in number, all prostrate, with two fatal black-vomit cases among them. I am willing to accept the opinion of most practitioners,

that persons recently arrived from high northern latitudes, present cases of greater severity. Women are as subject as men, regard being had to their exposure; their cases are very uniformly milder, and more manageable. Negroes are as liable as whites; their cases, too, are generally more manageable than those of whites.

"My observation would lead me to believe that second attacks are extremely rare. I do not believe I ever saw more than one, except where the party had lost his yellow-fever acclimation by a long subsequent residence in a northern climate. Dr. McCraven, a very safe authority, reports one case of unmistakable second attack. At the commencement of the epidemic, there were in the city of Houston sixteen practitioners, of whom eight had had the yellow fever in some previous epidemic; the remaining eight had not. All the first escaped completely; all the latter had severe attacks, and five of them died."

Here follows a minute and excellent description of yellow fever in all its stages, which must be omitted.

Pathology of yellow fever.—Under this head the author briefly recapitulates the postmortem appearances he had observed in his dissections made in four epidemics,—two in Galveston, one at Rondout, near New York, and one at Houston. He is not satisfied with the now commonly received opinion, that black vomit is simply a hæmorrhage from the stomach, the blood being turned black by the acids and motions of that organ; but regards this blood as "notably modified by the secretory action of the membrane which furnishes it." He describes correctly the postmortem appearances found by most observers.

Treatment. His remarks are more full on this head, reviewing the effects of various remedies that have been extolled by different writers. He opposes all heroic remedies, such as quinine, the lancet, calomel, etc. The treatment he found most successful was very mild, such as gentle cathartics, the mustard foot-bath, warm drinks, strict observance of quietude in bed, and keeping closely, but not heavily, covered. Cupping was sometimes required to relieve distressed organs. Brandy was often beneficial in the latter stages, also anodynes. Under this mild treatment, Dr. S. says, "in his own practice there was less than

one fatal case in twenty cases of severe attack." These results are certainly very creditable. Says he knows of *no cure for black vomit.* I shall insert this able author's closing remarks entire, as they relate to points of great interest:—

CAUSE OF THE DISEASE; ITS ORIGIN; CONTAGION.

"Our opportunities in Houston, and, I may add, in Galveston also, have thrown no new light whatever on the causes or origin of yellow fever. The two places are in regular communication with New Orleans throughout the year; Houston mediately through Galveston. The same general and local causes of disease appear to exist here, probably some of them in a less intense degree, which exist in New Orleans. Yellow fever made its appearance in Houston and Galveston about the same time, in the latter part of the month of August. So far as the facts can be ascertained in Houston, they preclude the notion of its importation from abroad.

"Numerous cases have occurred of persons exposed in Houston and Galveston, who afterwards sickened and died of black vomit on the farms and plantations. In no instance did these give rise to yellow fever. Perhaps an investigation of the circumstances attending the development of yellow fever on Chocolate Bayou, in the little village of Liverpool, would exhibit an exception to the above general rule.

"My own observation has fully satisfied me that in Texas yellow fever is in no degree communicable from one person to another; but that exposure in an infected district is an essential preliminary to the development of the disease.

"I am, moreover, pretty well satisfied that the most tenable opinion is, that the concurrence of general and local causes are required to originate yellow fever.

"Among the general causes may be mentioned an ardent sun, a prevalence of northerly winds, a highly electrical condition of the atmosphere. In my opinion, too, we must also have recourse to the old Sydenhamic doctrine of a constitutional state of the atmosphere. This phrase may be like the algebraic x, and express an unknown quantity or entity; but, if unknown, it probably exists, and may enter into our calculations till science elucidates its nature or dispels the illusion.

"Among the local causes may be mentioned a population

more or less dense, and those causes which the aggregation of human beings engenders. And I may add, that the *quantity* of combustible material, that is, of unacclimated persons, seems greatly to favor the development of yellow fever. Proximity to water, also facilitates, though it is not essential to the origination of this disease.

"I will conclude this long article with adding, that my observations have not appeared to me to confirm the opinion which you advocate with so much ability,—that yellow fever is a high grade of bilious fever."

I must here be allowed to correct an erroneous impression entertained by this writer, in regard to *my view* of the relationship subsisting between yellow fever, and intermittent and remittent fevers. In my "*Report on the Fevers of New Orleans*," published in the first volume of *Southern Medical Reports*, page 112, may be found the following remarks:—

"We do not assert, with Rush and others, that yellow fever is *nothing but a high grade of bilious fever;* for we admit that the latter is sometimes the most malignant of the two, without displaying the characteristic features of the former. Our position is, that *yellow fever is only one of the forms of endemic fever* (malarious if you will), *which derives its characteristic features from the locality and attendant circumstances where it prevails.*"

I do not wish to discuss this question in a *controversial* spirit. The facts presented in the foregoing portions of this report, as also many others which I have given in my previous writings on the subject, show the grounds on which my conclusion is based; and I am sorry it does not meet with more general concurrence. It is certainly a little remarkable that the advocates of the *specific nature* of yellow fever are but seldom able to distinguish it from bilious remittent, until it reaches its fatal termination in *black vomit; and not always even then.* This was the case, both here and elsewhere, during the late epidemic, as appears in this Report.

I must here close our historical sketch of the late epidemic yellow fever as it prevailed in the four States assigned to my attention, having to regret the omission of several important places, and the imperfect notice of others where the disease prevailed with great violence and fatality. It is feared the details given will prove tedious to the reader; but they may be useful for future reference. Besides the places I have mentioned, the

epidemic prevailed at Alexandria, Shreeveport, Madisonville, Covington, Baton Rouge, Bayou Sara, Clinton, and Washington, in this State; at Bay St. Louis, Pass Christian, and Biloxi on the Lake Shore, in Mississippi; and at Mobile, Selma, Demopolis, and Montgomery, in Alabama. Such an extensive epidemic of yellow fever was never known before in America. Taking New Orleans as its *starting point* or *center*, the area of its ravages extended to a circumference of about two hundred and fifty miles in all directions. All the inhabitants of this vast area, 'tis true, were not scourged by the pestilence; but a majority of the towns, and a large amount of rural population within it, were afflicted. In most of these places the disease prevailed, on this occasion, for the *first time*, notwithstanding cases of it had repeatedly been introduced into perhaps every one of them on former occasions, and they had always kept up continued communication with New Orleans during the prevalence of epidemics here. The unknown *epidemic influence* or *morbific cause*, whatever it was, seemed to extend over the area I have designated, and *no farther*. Within that area, the disease was known in some instances *to originate or spring up spontaneously, without any apparent connection with previous cases or infected spots;* but it must be admitted that in the greater number of places where this epidemic prevailed, there had been direct communication with previously infected districts through the medium of either *persons*, *vessels*, or *fomites*. As to the weight or importance that is due to such connection, it is for the reader to judge, after examining the facts presented. That yellow fever *may* originate from the combined influence of local and atmospheric causes without the *slightest probability*, not to say *possibility*, of communication with infected places, has been completely established by the occurrence of the disease at *Galiopolis*, on the Ohio river, and at *New Design*, in Missouri, in 1796–7, and in numerous instances on board ships, as has been shown by Dr. R. La Roche, of Philadelphia (*Amer. Journal Med. Sciences*, 1853). That hundreds and thousands of cases of yellow fever have been taken from New Orleans and other places where the disease was prevailing, to healthy towns and families at a distance, without communicating the disease, although no precautions were used to prevent infection, will surely not be denied by any person. That yellow fever may, and does originate every year from causes existing in this city, and independent of all foreign com-

munication, is admitted by almost every one; those who doubt this in regard to the late epidemic having brought forward no evidence to the contrary,—many admitting it who still contend for the *infectiousness of the disease.*

These facts being admitted as true (and I really think they should be), there surely is some reason for doubting the agency exerted by the introduction of the disease itself, or goods from infected places into towns, neighborhoods, and families, a short time previous to the outbreak of the epidemic at such places, as is claimed by the advocates of infection.

It is sometimes extremely difficult to decide whether certain phenomena be *mere coincidences*, or hold the relation of *cause* and *effect.* Now, that at least one case of yellow fever was actually introduced this year into a great many places previous to the outbreak of the epidemic, is an undeniable fact. Such was the case in *sixteen* out of *twenty* places that have been noticed in this Report; but does it thence follow *necessarily* that the epidemic broke out *as a consequence* of such introduction! If this were so, and the extension of the disease beyond New Orleans was attributable *alone to infectious communication*, it follows that wherever such communication existed, the disease should have prevailed in at least a majority of instances,—and it should have prevailed *nowhere else.* But such was not the fact. We have given instances, and might have given many more, in which the disease *failed to extend itself under the most favorable auspices* of this nature; and others in which it appeared to arise spontaneously, without any traceable connection with infected places. Now, if it is *possible* for yellow fever to originate from a *local cause*, under a certain condition of the atmosphere at *one place*, it *may have done so at all;* and the fact that the epidemic broke out about the time that cases of the disease were introduced, *might have been a mere coincidence;* because a like result has failed to follow in *hundreds and thousands of instances of equal exposure.*

To show the influence of *locality* or *local causes*, we may refer to the occurrences at the town of Providence and other places; where many persons left the infected spot and went into families a few miles distant, and there sickened and died, without communicating the disease to their immediate attendants. Farther south, however, we have some well-attested instances in which the disease *appeared* to be conveyed from places where it was

prevailing epidemically, to others quite remote and altogether different; and there communicated to persons who had not been otherwise exposed to it, in such a manner as to convince all who witnessed them that it was the direct result of a transported infection or *materies morbi.* What though this result should fail to occur in ninety-nine out of a hundred instances, or in forty-nine out of fifty years, when epidemic yellow fever prevailed in a certain region; would that make it *impossible* for the *hundredth* case to have been caused by infectious communication? or for such an occurrence to have taken place in the *fiftieth* year alone? I think not. It would but make an *exception to the rule;* and there is scarcely a rule, of any kind whatever, that does not admit of some exception. We must admit that many diseases not ordinarily infectious, are so *sometimes;* and that even the most contagious diseases do not *always* display this property. Now, I have never witnessed an instance myself of yellow fever having been communicated, from one person to another, without a strong probability of some other agency in the production of the effect besides either *personal infection* or *fomites;* but I will give a case on such unquestionable authority, that I believe it as much as if I had seen it myself. I was intimately acquainted with the attending physician, also the suffering parties and the locality where the occurrence took place. The late Dr. George Banks, of Clinton, Mississippi, informed me that in 1841, when the city of Vicksburg was severely scourged by epidemic yellow fever, a Mr. McManus, who lived on the hills of Hinds county, four miles from Clinton and more than forty miles from Vicksburg, went down to the latter place and remained there several days. He returned home, and was very soon attacked with yellow fever, of which he died, after throwing up *black vomit.* A few days after his death, his wife, who had nursed him assiduously during his illness, and had not been away from home, was attacked in a similar manner, and died with *black vomit* and *yellowness.* Their residence was in a high and ordinarily healthy locality, where yellow fever was never known to prevail.

Now, it is evident that Mr. McManus contracted his disease in Vicksburg; but if any one can doubt that Mrs. McM. caught the same disease from him, I must confess it is more than I do. I must add, however, that several cases of yellow fever were in that year brought out to the neighboring towns of Clinton, Jackson, and Raymond, all in Hinds county; and some of them died

without communicating the disease, though no precautions were taken to prevent it. The case I have just given is an instance of what is called "*contingent* contagion or infection," which some authors are altogether unwilling to admit; but I would like to know how else they would account for it. Why Mrs. McM. contracted the disease from a person just out of an infected district, and the same thing did not occur under like exposure at Jackson, Clinton, and Raymond, I know not; but such are the facts.

It is certainly a curious thing, though not altogether unique, if yellow fever be communicated in *one place*, or *one season*, and not in others; but the same is asserted by able authors in respect of typhus, puerperal fever, cholera, and dysentery. The testimony on this point, presented in the foregoing history, is certainly very contradictory; yet, the facts observed at several places, were at least sufficiently striking to change the long-settled opinions of a good many experienced and highly intelligent physicians. For myself, although willing to admit the *possibility* of yellow fever being *sometimes* carried away from an infected district, and communicated to persons who would not otherwise have taken it, I cannot for a moment believe that this is the method in which it *usually* spreads from a starting point over an area of greater or less extent. Indeed, I look upon such as *extremely rare occurrences*, and am by no means convinced of the correctness of the conclusion arrived at by several physicians, that the epidemic of last year was thus introduced and spread at many places in this region. I believe there existed, last year, in the extensive region I have pointed out, a peculiar constitution of the atmosphere, which caused the ordinary endemic fevers to *run into* or assume the type recognized as *yellow fever*, and that this type would have appeared as it did, and prevailed epidemically at all the places that have been mentioned, *even though there had been no sort of communication with the places first infected.* There is surely some ground for this opinion in the facts presented at the town of Columbia on the Mississippi river, and Trinity on Black river, where the fairest opportunities were afforded for spreading the disease by contagion, but without effect; and also at Centreville, where it broke out spontaneously. The great epidemic of 1847 prevailed at only a few places, viz. New Orleans, Mobile, Galveston, Houston, Vicksburg, Rodney, Alexandria, Baton Rouge, and perhaps some others of less note, notwithstanding *hundreds*,

and probably *thousands*, of cases went from the infected places to the region around, and there was no interruption to intercourse with New Orleans, excepting at two places, Natchez and Vicksburg; at the former of which, according to Dr. Cartwright, a few cases of yellow fever *originated;* and at the latter, according to Dr. Hicks, a moderate epidemic,—showing the utter worthlessness of their quarantine. *In not a single instance during that year did the disease display contagious or infectious properties.*

Quarantine against yellow fever has been maintained at Natchez ever since 1841, but without the least benefit, so far as I have been able to learn. During this time, it is true, there has been but one severe epidemic at that place; but I am informed by some of the most respectable physicians residing there, that the town has not been more exempt from yellow fever than it was for an *equal*, if not *longer* period preceding 1841.

Quarantine was attempted at Vicksburg in 1847 and 1853; but failed to keep off the disease.

A rigid quarantine was established below New Orleans in 1821, and maintained till 1825, during which time there were two severe epidemics, and sporadic cases were seen the other two years. Its repeal was then brought about by *popular clamor and indignation.*

Notwithstanding these well-authenticated historical facts, there is again a strong popular feeling in favor of the establishment of quarantine against yellow fever at New Orleans; and the subject was before the Louisiana legislature last winter. After being investigated by a joint committee of both houses, it called forth two reports—the majority in favor, and the minority opposed to the establishment of quarantine. The result was, that no law was enacted on the subject. For my own part, I think it would be better to establish a worthless quarantine, than to *do nothing* in so important a matter; as is done by our State and city governments. It would at least serve to settle the public mind in respect to this *delusion*, and turn attention to *the only thing that promises any good whatever*, viz. *an efficient system of measures for cleansing the city.* The opponents of quarantine in this region are constantly reminded of the protection that is afforded New York and Philadelphia by their quarantines. If the truth were known, this, too, is but a *delusion.* Of one thing I am certain,—during the late terrible epidemic at New Orleans and Mobile, steamships ran regularly from both places to New

York, carrying passengers and goods enough to have infected the latter place, if it had been possible. These ships, I am told, were not subjected to *any thing like rigid quarantine*, although they had cases and deaths from yellow fever on the voyage. Under much less favorable auspices, the barque Mandarin went into Philadelphia; and soon afterwards yellow fever broke out near where she lay, thus leading some persons to think the disease originated from this vessel; but surely the full and minute history of that small epidemic, given by Dr. La Roche, will lead any impartial inquirer to a different conclusion. Dr. La Roche shows conclusively that the disease originated from local causes, and was not at all communicable when taken out of the limits of the infected or unhealthy district.

I wish my views to be distinctly understood on this important point, and shall, therefore, endeavor to be as explicit as possible.

I believe that yellow fever originates from the combined influences of local causes existing in this city, and a peculiar state or constitution of the atmosphere; and that when this concurrence takes place, as it does, to some extent, in this city every year, we have more or less of the disease, entirely independent of any foreign intercourse or communication; that the chief local cause is, animal and vegetable matter in a decomposing state: and that the condition of the atmosphere that is requisite for the production of this effect, is as yet unknown.

I believe that the yellow fever ordinarily arising from the above influences, is, in general, not in the slightest degree infectious or communicable; but, with the lights now before me, I am strongly inclined to believe that the disease is *sometimes*, but very *rarely*, communicable over a limited region around an infected spot, or one where it has originated, and is prevailing.

I believe such an occurrence is so rare, that in a series of years, say ten or twenty, around New Orleans, where this disease prevails annually, not more than *one indubitable instance* would be observed in *one hundred like exposures*, and perhaps in one epidemic out of twenty. Still, it is *possible*, and we should allow the fact its due weight. Indeed, I conceive it quite possible that a more malignant type of yellow fever than ordinary, may now be springing up from local causes that have long been in process of maturation at this place, which may prove highly infectious. At this very time (August 1854), I am daily witnessing facts

that appear to favor this idea. I shall investigate them with a mind as free as possible from the bias of preconceived opinions, and trust I shall have the firmness and candor to renounce any error I may have embraced, when convinced to the contrary.

Under my present impressions, I do not believe that any benefit will accrue to this city, in the way of keeping off yellow fever, by the establishment of *quarantine;* yet I had rather see the experiment tried, than a longer continuance of the supine indifference that has ever characterized our city government on this important subject.

THE CAUSE, PATHOLOGY, AND TREATMENT OF YELLOW FEVER.

The unexpected length to which this report has already been drawn, together with the fact that I am at this moment busily engaged noting the rise and progress of another epidemic which has broken out at New Orleans, preclude the possibility of my entering upon a full consideration of the above important topics on the present occasion. In short, I can give them but a passing notice, hoping to discuss them more fully on a future occasion.

I have already expressed the belief that yellow fever originates from the combined influences of decomposing animal and vegetable matters, and a peculiar, unknown constitution of the atmosphere; but I confess this is *only a conjecture*, and shall not attempt now to give the grounds of my belief in it. So far as I have been able to ascertain, *the true and real cause* of this disease is as yet unknown. Whatever it may be, however, long and careful observation of its effects has led me to the conclusion that it is most probably *a subtle material poison*, that floats in the atmosphere, and enters the human system by *respiration;* first, getting into the current of the circulation, and thereby carried to all parts of the body. This, too, is but *a theory*, that cannot be demonstrated by positive proof, yet it may be strongly supported by the analogous effects of certain known poisons upon the system. It appears to me that the phenomena observed in an attack of fever, bear a strong resemblance to a conflict between the vital powers and certain poisons which we have known to be introduced into the system; that in *some* instances these powers are capable, unaided, of *resisting or overcoming* the poison,—of doing so in many cases with the aid of medical skill; but in others they are totally unequal to the task, with whatever aid

they may receive; and that in such, death must be the inevitable result.

I have known yellow fever to run through all its stages and terminate in recovery, *without medical aid.* I have, more frequently, seen cases thus unaided terminate in death. Such cases as these are valuable to the medical observer, as showing the *natural history or course of the disease.* I have seen many cases *cut short and cured in the first stage of the disease*, thus making an *abortion* of its natural course. On the other hand, I have seen attempts to produce this result *fail*, and the effects sometimes prejudicial.

I have seen a great many cases of yellow fever conducted to a favorable termination by medical skill, which I confidently believe *would have died without such aid.* On the other hand, I think I have seen cases that were *injured* instead of being benefited by the treatment pursued.

I have known cases which appeared to be *doomed victims from the moment of attack*, and which I believe could not have been saved by any remedial means now known.

In addition to these observations, I may say I have seen persons whose systems were capable of resisting the morbific cause, and never experiencing its deleterious effects, although fully exposed to it, and witnessing the deaths of thousands around them. Some escape through violent epidemics, such as the last in this city, and are attacked subsequently, when but little of the disease is prevailing; several instances of which, I have recently witnessed.

Our theory being, then, that yellow fever consists in a series of morbid phenomena and lesions, produced by an aerial poison that finds its way into the human system, the *sum total* of these phenomena must constitute *the pathology* of this disease. The *symptomatology* of yellow fever has been most accurately given by many acute observers. The same may be said respecting the *postmortem* appearances of all parts of the body *excepting the blood.* So far as I know, the changes that take place in this fluid, from the beginning to the end of the disease, have not yet been satisfactorily demonstrated; but the chemist and microscopist are engaged in the work, and we may hope for important results from their labors in the course of time. I am not aware that examinations of the dead body have thrown much light upon the

true pathology of yellow fever, or afforded us much assistance in the selection of the most beneficial remedies.

Treatment.—In regard to the treatment of yellow fever, the grand object and aim of all our investigation, I am quite at a loss as to what I should say. Almost every imaginable plan of treatment was pursued in the late epidemic, from the *mildest* to the most *heroic*, and with results as various as the plans. It would be impossible for me to describe all the different plans pursued, and I must therefore confine myself to a few general remarks upon this topic.

Some cases were known to recover without any medical aid whatever. Many physicians say they succeeded best with a comparatively mild or gentle course of treatment, taking the range of all the most approved remedies in this disease, but using them in *moderate doses*, and according to the indications apparent in the natural course of the disease; whilst others, again, boldly undertook to *cut short and cure the fever* by the prompt use of powerful remedies. From 1847 to 1853, I succeeded in doing this myself, as did several other physicians in New Orleans, in a very satisfactory manner, by large doses of the sulph. quiniæ and opium at *the onset*, followed by moderate doses of calomel or blue mass. These were the chief remedies relied on, though others of less force were used as adjuvants. In my published accounts of this practice, I admitted that the type of yellow fever thus so readily mastered was *mild*, and that it remained to be seen whether it would succeed equally well in a more malignant type of the disease. Candor requires me now to state that this abortive practice did not answer my expectations in the late epidemic, and that after giving it a fair trial I abandoned it, and fell upon a milder course of treatment, which proved more satisfactory. I finally dropped the sulphate of quinia altogether, and resorted to the *ferro-cyanuret*, combined with blue mass and, sometimes, morphia. Experience has taught me that quinia is most beneficial in the *first stage*, and that it should rarely be ventured on even so late as the end of the second day. I do not recollect ever to have seen good effects from it when given in large doses after the second day; but often the contrary. I believe that quinine operates in two ways: first, as a *specific antidote* to the fever-poison; and secondly, as a powerful *depurator of the blood*, by the copious perspiration it induces. Now, if this view be correct,

it may readily be conceived why this remedy should produce its happiest effects in the *first stage* of the disease, as it is then that the supposed poison is floating in the current of the circulation,—then the perturbation of the system is chiefly, if not entirely, *functional*, and has not continued long enough to cause *organic lesion* of any important part. That quinine, when administered by the mouth, the rectum, on blistered surfaces, and even by inhalation through the lungs, does readily find its way into the blood, and is eliminated in the urinary secretion, has been completely demonstrated, and must be admitted as a fact. In regard to the *perceptible* effects of quinine on the human system, we see none that may not be equally or even more powerfully produced by other remedies; yet none of these medicines display such decided *curative power* in the treatment of fevers as quinine: hence we are led to the inference, that quinine must possess *specific virtues* in these affections. Dr. Boling, of Alabama, and others, have asserted that quinine is highly beneficial in pneumonia and some other inflammatory diseases occurring in miasmatic districts; and so have I; but I have not observed like good effects from this remedy in the *inflammations* that commonly supervene in the course of idiopathic fevers, such as *cerebritis*, *gastritis*, *gastro-duodenitis*, etc. When these organic lesions set in, they require special attention. I know of no remedy but *cinchona* that possesses *specific virtue* in the cure of our southern endemic fevers. We may bleed, sweat, puke, purge, stimulate, depress, heat, cool, and vesicate; and, doubtless, the judicious application of such means often affords very great assistance to the constitution in its struggles against the deadly assaults of these fevers; but that is all they can do. But we find in *cinchona* a remedy, which, if introduced into the system *early enough and in sufficient quantity*, possesses the power of *curing* these diseases in a great many instances, without any other aid whatever.

So early as the year 1800, two distinguished Spanish physicians, Drs. Lafuente and Bobadilla (the former consulting physician to the royal armies), discovered and published to the world, that the malignant yellow fever prevailing in Spain at that day could be completely *cut short and cured* by from six to eight ounces of Peruvian bark, taken within the first forty-eight hours from the attack. Their dose was two or three drachms repeated every two hours, commencing immediately after the chill. At first, they gave a gentle emetic to "clean the stomach;"

but this practice was abandoned, because it often left the stomach so irritable that it could not retain the bark. They then gave some cream of tartar with the first doses, for the purpose of opening the bowels; but this was afterwards found useless; and, finally, the bark was relied on *alone*, and the success was extraordinary.

"Of ninety-seven persons who were attacked with this fever in the village of Barreos, and who took these six or eight ounces of bark within forty-eight hours of the attack, commencing from the first to the eighth hour, all quelled the disorder in its origin, one excepted, who perished, having at the same time an attack of the gout. Of eight who took the same quantity, commencing from the eighth to the tenth hour, all were cured. Of five who began to take it from the tenth to the twenty-fourth hour, three recovered and two died. Of seventeen, who began the third and fourth days, eight recovered and nine died; and, finally, of eighty-nine, who were treated as they chose, but in a different manner (including the sudorific plan), only twenty recovered." *

This would appear to show, not only the wonderful powers of cinchona in the cure of yellow fever, but also, that the physicians of the present day were anticipated by a long period in their practice of curing yellow fever with the alkaloids derived from that article. But I must hasten to a close.

I do not maintain that quinine is *the only remedy* that is beneficial in yellow fever, or that what is called "*the quinine treatment*" is the only method that can be relied on; on the contrary, I have not the least doubt but that the skillful use of other remedies, together with careful nursing, may enable nature to overcome the disease in a great majority of cases, without the use of a single particle of quinine. A few years ago, the late Dr. Luzenberg, and several of our French physicians, treated yellow fever quite successfully, almost with the *lancet alone*. Some of our physicians who were formerly much prejudiced against quinine in yellow fever, now prescribe it freely; whilst others, who once considered it almost a sovereign remedy in this disease, now prescribe it very cautiously. That this invaluable medicine was often injudiciously prescribed, and sometimes produced injurious effects in the late epidemic, cannot be

* New Orleans Med. and Surg. Journ., vol. iv. p. 248. Extract from Philadelphia Medical and Physical Journal for 1808.

denied; but this is not sufficient cause for condemning it entirely. On such grounds, every potent remedy in the materia medica would be ostracized at once.

Let us now endeavor to lay down something like *the principles* of practice in yellow fever. Before this can be done, we must have definite and correct ideas of the *nature or pathology* of the disease, of its *natural course* from the beginning to the close of an attack, and of *the manner in which it terminates*, whether it be in convalescence or death. The changes produced in the organism by the morbific cause, may be discovered by examination after death. In these examinations, however, we see only *the results* of morbid action; and, as before stated, I am not aware that these discoveries have thrown much light either upon the *modus operandi* of the morbific cause, or the best method of counteracting its baneful effects.

We are called to a patient, I will say within two or three hours after he is attacked, and are told that he was taken with a chill, accompanied by headache and pain in the back and limbs; and that on going to bed, and covering up warmly, this condition was soon followed by the symptoms now before us. We find him with violent pains in the head and back; his skin is burning; countenance flushed and swollen; eyes red; pulse frequent, full, and bounding; thirst intense; stomach uneasy; sometimes nausea and vomiting, restlessness, &c. We recognize this as the *first stage* of yellow fever; and we know from experience that it will shortly be followed by a second and third stage, presenting symptoms quite different from these, but governed, in a great measure by the manner in which this stage is treated. Now, what are the *indications* pointed out by the foregoing symptoms, and upon what *principle* shall we endeavor to fulfill them? It is evident that the symptoms plainly indicate *super-excitement of the whole system*, and the *principle* to be acted on is *to restore the equilibrium of the circulation and the excitement.* The over-heated skin must be cooled; the accelerated pulse must be retarded; the distressing pains, thirst, and restlessness, must be relieved. These desirable results may doubtless be effected by different means; but that is the best method which accomplishes the object most promptly, effectually, and *safely.* The favorite practice of some physicians is to endeavor to cut short the disease at this stage, and thus prevent the subsequent stages entirely. Others think this

hazardous, and are satisfied with *affording relief to distressing symptoms, and safely conducting the patient through all the natural stages of the disease.* We will suppose the latter plan pursued in the case before us, and that by means of free cupping, ice to the head, the hot mustard foot-bath, and a dose of castor-oil, or some other cathartic (the remedies usually resorted to), the patient has obtained much relief in every particular; but still the fever marches on its regular course, and we now have him in the *second* stage.

The period is *the close of the second and beginning of the third day.* The patient, if doing well, is sweating freely, has but little pain, pulse soft and not above 100 to the minute, thirst may be considerable but not distressing, bowels open, urine free, sleeps quietly, and relishes light food. All that is necessary now, is to let him rest quietly and free from all mental excitement, to keep up a gentle perspiration with a tablespoonful of the *neutral mixture*, or the *liquor ammoniæ acetatis* every hour or two; and to let him drink weak lemonade, barley-water, and small quantities of thin chicken-water. If he is *not doing well*, the skin has a constant tendency to get dry and hot, the pains in the head and back continue, he is restless and uneasy, pulse upwards of 100, thirst for cold drinks distressing, stomach and bowels flatulent, secretions scanty. The indications now are, to reduce the super-excitement of the system, especially the organs most affected; and to increase the action of the principal emunctories,—the skin, liver, and kidneys. The *principle* on which we proceed is *depletion*, in some form. The approved remedies in this state are wet cups or leeches to the distressed organs, mercurials, diaphoretic mixtures, baths, spongings, the wet-sheet, etc.; but if they produce the desired effect, it will be mainly on the principle of *depletion*, either by the direct abstraction of blood, or by the establishment of copious secretions. A moderate spontaneous hemorrhage from the nose, gums, or uterus, is often followed by the happiest effects at this stage of the disease. We may now venture to give a *prognosis* of the case, which will be favorable or otherwise according as we have succeeded in combating the foregoing unfavorable symptoms.

We now approach the *third, or critical stage* of the fever; the period being generally *the end of the third day*, or later. If the patient is *safe*, you may find him extremely weak, but calm, quiet, and disposed to sleep; his pulse slow and soft, skin cool and

moist; no pain, little or no thirst, free secretion of urine, and a desire for nourishment. He may now be allowed small quantities of chicken-water, beef-tea, thin arrow-root, or other light food. If he have no appetite, he may take a little ale, porter, or weak brandy and water. The utmost caution should be observed to avoid physical or mental exertion, until the powers of the system have had time to recuperate.

If the crisis is *not complete and favorable*, the patient will be restless and reckless, somewhat delirious, eyes injected and dull, skin dry and beginning to turn yellow, capillary circulation sluggish, gums and lips engorged, tongue red and dry, urinary secretion very scanty; he is either despondent or indifferent as to the result of his case; his stomach is uneasy, with acid eructations and not the least appetite; there may be slight nausea, with occasional vomiting of the fluids drunk; the ejecta are acid, of a whitish color, with a few flocculi like the wings of insects floating in a mucilaginous fluid; there is also heat and burning in the stomach.

Nature now points to *spontaneous hæmorrhage* as the means of bringing about a *favorable crisis;* but, unfortunately, that is likewise too often the avenue to death. If a gentle hæmorrhage now sets in from the nose, gums, or uterus, we often see the happiest effects soon follow; yet either of these hæmorrhages may prove uncontrollable and prove fatal. If the hæmorrhage appears from the stomach, it is *black vomit*, the most dangerous of all. The effect of the first free discharge of black vomit is decidedly soothing, and marked relief is experienced of the distressing stomach symptoms. This doubtless proceeds from the disgorgement of the congested organ. If the effusion of blood into the stomach be very slow and in moderate quantity, the same relief does not follow; and after death the mucous membrane is found of a livid hue. The effusion may be so rapid that pure, unchanged blood is thrown up. If the patient has been freely depleted in the early stages by blood-letting, purging, and sweating, the crisis is not so apt to be marked by hæmorrhage; yet I have seen a man die with copious black vomit, who had lost near a hundred ounces of blood by venesection and cups.

We should never lose sight of the important fact that *yellow fever has a natural tendency to crisis by hæmorrhage.* This is proved by the general observation that when the disease runs its

course uninterrupted by medical treatment, it will terminate in this manner in a great majority of the cases. By judicious treatment the fever may be brought to a crisis in a different way, as by free secretions from the skin, liver, and kidneys; and this is one of the main objects of the practitioner; but how often does he welcome the appearance of a gentle hæmorrhage from some safe part, when his remedies seemed likely to fail in producing the desired effect! When the fever is cut short and cured by quinine or the lancet, neither hæmorrhage nor jaundice are apt to appear; hence, we may infer that these symptoms proceed from alterations of the blood produced by the continued action of the morbific cause. What these changes are, as before stated, remains to be discovered.

Let us return now to the *indications* in the *unfavorable state of affairs* at the third stage of the disease. They are to keep the patient as quiet as possible, to allay the irritability of the stomach, and correct acidity by soothing alkaline mixtures, and to restore the action of the skin by repeated frictions of warm vinegar, or spirits and water. If there be considerable determination to the brain and stomach, with deep redness of the face, lips, and gums, we may be sure the patient will not recover without hæmorrhage; but if we venture to draw blood, it must be by a method as much like a gentle spontaneous hæmorrhage as possible. In this condition, the application of a few leeches to the head, epigastrium, anus, or internal malleoli, is sometimes followed by the happiest effects. Our *principle of action* in this stage is, to husband carefully the remaining vital forces, to see the secretions are going on, and to follow closely the directions of nature. The disease now comes to a *crisis*, and the patient either convalesces or dies. Either of these processes may prove tardy and dubious; but I cannot pursue them farther. At this stage of the disease there is sometimes observed a *deceitful calm*, that is well calculated to disappoint the flattering hopes of the inexperienced. After three days or more of excitement, pain, and torturing restlessness, the patient becomes quiet and easy, his skin is of the normal temperature, the tongue moist and clean, and the mind clear and undisturbed by apprehension of danger. There is really *but one symptom* that indicates the impending danger, and that is *the total suppression of the renal secretion.* It will be found on inquiry that *no urine has been passed for twelve hours, and there is none in the bladder.* This single symptom is sufficient to

excite fearful forebodings, though every thing else appear favorable. *The urinary secretion must be restored, or the patient will not recover.* Special attention should now be directed to this indication; but, unfortunately, not much can be done in the existing state of the patient. Fomentations, stimulating frictions with turpentine, and diuretic injections, may be resorted to; but we should be extremely cautious how we disturb the stomach with medicines. The stage of *convalescence* is worthy of a passing remark. The crisis of this disease is followed by great *prostration*, yet the convalescence is generally rapid, provided all imprudence in diet and exercise be avoided. It is astonishing how slight an imprudence in either of these, may produce serious consequences. The mere sitting up a minute or two, taking a mouthful of solid food too soon, or eating three spoonfuls too much of soup, has been known to cause a fatal relapse.

Our principle in this stage is *to avoid imprudence of every kind, and allow nature the fairest chance to recuperate her prostrated powers.* Good London porter and ale are the best tonics.

Such is a rude attempt to lay down the *principles of practice* in yellow fever. It will be seen that they are based in a great measure upon *theory*, but that is unavoidable in the present state of our knowledge. We are necessarily *compelled to theorize* upon matters that are not visible and demonstrable. Every physician has his theories, however rude or reasonable; and *his* are best that lead to the most successful practice.

I have said that in the late terrible epidemic, I first practiced the *abortive method* by large doses of quinine, which did not succeed to my satisfaction; and that I soon fell upon a milder plan. The following are the results:

I treated in private practice, one hundred and thirty-seven cases of well-marked yellow fever, exclusive of cases to which I was called in consultation. Of these, nineteen died, and I signed the certificates of death. *Nine* of these deaths occurred in cases to which I was called *at or beyond the second day from the attack* and several of them were at the close of the third day, when the patient was *on the verge of black vomit.* They were too far advanced to expect much from medical treatment, and therefore I do not consider myself chargeable with the results. The other ten deaths occurred in cases that I had a fair chance to treat, and should have cured if I had known how to do it. The rate of mortality, then, for the whole number of cases, was 13.86 per

cent. or about *one* in *seven.* Deducting the nine deaths that occurred in the patients who were beyond the proper stage for treatment when it was commenced, we have, then, one hundred and twenty seven cases, and ten deaths; which is at the rate of 7.87 per cent. or *one death to not quite thirteen cases.*

This is a conscientious statement of facts; and if any one had better success in the late epidemic, I can only say I am glad of it.

I here close this long and tedious Report, and crave the indulgence of the Association in behalf of its numerous defects.

New Orleans, La. *August 30th*, 1854.

PRIZE ESSAY.

ESSAY ON A NEW METHOD

OF TREATING

UNUNITED FRACTURES

AND

CERTAIN DEFORMITIES

OF THE

OSSEOUS SYSTEM.

BY

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INTRODUCTION.

THE object of this Essay is,—

1st. To establish, by experiment, the principles upon which the treatment of ununited fractures should be conducted; and to show that these principles are applicable to the human subject.

2d. To propose a new method of treatment for certain deformities which result from true anchylosis,—union of fractures in an angular position, rachitic curvature, etc.

It is divided into three parts:—

1. Experimental researches on the effects of foreign bodies when allowed to remain in contact with the osseous tissue, and on certain wounds of the bones.

2. Treatment of ununited fractures by subcutaneous perforation of bone. Cases treated in this manner.

3. Treatment of deformities of the bones by subcutaneous perforation. Experiments on this subject.

The reader will please to bear in mind that I do not propose to write a monograph on any of the subjects of which I speak. They are only alluded to in so far as they bear on the principle of treatment herein proposed.

Among those who have aided me in my investigations, my thanks are especially due to Baron Larrey, who had the kindness

to put at my disposal the museum and library of the Hospital of Val-de-Grace, his private library, and the notes in his possession which refer to the subject of this Essay. He also gave me the opportunity to demonstrate, upon the *cadaver*, the application of my method of treatment before the faculty and pupils of the Hospital of Instruction. To those who have had occasion to know him as the truly learned and judicious surgeon, as well as the worthy successor of his illustrious father, it were unnecessary to add how much his approbation was gratifying. He recognized the method as both just and new.

When I speak of its novelty, let no one impute to me the pretension to have been the first to turn my attention to treatment of a similar kind. On the contrary, I am proud to acknowledge that several surgeons of the present epoch have sought to attain the same end; but, to the present time, no one of them, as far as I know, has either demonstrated the principle upon which it reposes, or laid down the rules by which it should be performed, or contrived an instrument by which it could be carried into effect with safety and facility.

Thus, Miller, of Edinburgh, proposed to denude the surface of the bone by means of a strong needle. Blandin is said to have divided the tissue intervening between the extremities of the fragments, with a bistoury; and Sanford, of America, did the same operation, supposing it to be original with himself.

Those who read attentively the experiments which I relate, will perceive that, both in principle and result, denuding the extremities, or dividing the tissue intervening between them, is a very different operation from passing an instrument several times through the substance of the bones themselves.

Others have proposed to make an incision, and attack the extremities with a common gimlet; an operation which has the double inconvenience,—that it is liable to expose to suppuration, and that the gimlet is incapable of perforating the compact structure of bone, as any one can readily prove for himself by experiment.

Surgeons have also occupied themselves in inventing different kinds of saws for effecting the subcutaneous division of bone; but no one, to my knowledge, has yet succeeded in perfecting such an instrument to such a degree as to be willing to present it to the public.

I am, therefore, permitted to hope that the operation which I

propose will be regarded as an improvement; and that, as an attempt to apply the principles of physiology to practical surgery, it will meet with the favorable consideration of the profession.*

* I am under obligations to Dr. J. W. Green, of New York, and Dr. J. C. Morfit, of Chicago, for most skillful and valuable assistance in conducting my experiments, and to the former gentleman for drawing the objects represented in the plates.

PART FIRST.

ON THE EFFECTS OF FOREIGN BODIES WHICH REMAIN IN CONTACT WITH THE BONES, IN THE ARTICULATION, ETC.

CHAPTER I.

The facts relating to this subject are found disseminated through many volumes of surgical works, the transactions of societies, medical periodicals, etc. The pathological specimens illustrating it are also scattered through the museums of different countries. It will not, I think, be a useless labor to collect and group together, under appropriate heads, a sufficient number of both to serve as data for pathological and practical deductions; illustrating the subject still further, when it seems to require it, by experiments upon the bones of animals.

My attention has been directed to this point by the difficulty which I have experienced in gaining sufficient information regarding it, and from the consequent belief that a labor of this kind is required to fill a void which exists in surgical science.

Its practical bearing on the extraction of balls and other bodies, as well as upon the use of setons, pegs, etc. in cases of ununited fracture, is sufficiently apparent. Its relations to the physiology and pathology of the osseous system will be found to be no less direct.

Foreign bodies which lodge and remain in contact with the bones may be divided into—

1. Metallic,
2. Non-Metallic.

Metallic bodies may be studied in their effects,

1st. When so placed as not to give rise to suppuration,

2d. When so situated as to produce and keep up suppuration.

This distinction does not hold with reference to non-metallic bodies, which, whether partially or entirely imbedded beneath the periosteum, almost invariably produce and keep up suppuration, so long as they remain in contact with the bones.

SECTION FIRST.

DIVISION I.

On the effect of metallic bodies lodged in contact with the bones in such a manner as not to keep up suppuration.

This may happen in two different ways:—

a. When the track through which the body has passed closes behind it without suppuration.

b. When suppuration takes place, to a certain extent, in contact with it, but is followed by cicatrization, without the discharge of the foreign body.

If the metallic body is lodged in its center, it remains, in a great number of cases, without producing any perceptible alteration in the bone itself, unless it be induration of its tissue.

Every large museum furnishes specimens of this kind; and those of large military establishments, as at Val-de-Grace, at Paris, or Chatham, near London, are particularly rich in them.

As examples, we may notice the specimen in the museum of the Royal College of Surgeons, at London, of a leaden bullet embedded in the bone upon the anterior surface of the posterior wall of the spinal canal, where it had remained for some years, without becoming loosened or producing any perceptible change in the bone. At the Musée Dupuytren is a leaden ball lodged in the side of a foramen of the sacrum.

At Val-de-Grace there are seven specimens of this kind,—two of balls lodged upon the surface of the cranium, one on the femur, two in the tibia, and one on the outside of the ilium, all showing the same result.

Nevertheless, there are cases when it happens that balls, so situated, produce absorption of the bones with which they are placed in contact. In the specimen of this kind in the Musée Dupuytren, the ball being lodged and half buried upon the external surface of the ilium, the adjacent bony tissue has undergone absorption.

The older surgeons considered it important to extract these balls, on account of the suppuration and necrosis to which they may give rise. Percy, who followed this practice, adds, "Nevertheless, some balls which have been left, either intentionally or from necessity, in the bones, have remained there without injuring the cicatrization, or causing any inconvenience. I have known an old *carabinier* who carried a ball in the middle of the tibia for twenty years, which I removed after his death. Berilgier cured a soldier who would not allow one to be taken from the humerus." *

Ravaton, Collignon, and Schmuker have found them in the upper jaw. These balls were said to be *incrusted*, and Ravaton mentions some thus situated in the bodies of the vertebræ. He (Ravaton) also mentions the case of a ball *incrusted* in the anterior wall of the frontal sinus.†

Baudens says, "Caries, necrosis, long and often interminable suppuration, kept up by the presence of projectiles, do not generally cease till after the extraction of the foreign bodies. There are, however, exceptions to this rule; and more than one fact attests that balls left in the osseous tissue take, at length, the privilege of domicile there, without giving rise to notable accidents. In this case, they almost always form the center of exostosis more or less voluminous. These exostoses in the hard parts, supply the place of the insulating cellulo-fibrous cysts which surround these balls in the fleshy parts."

"A soldier received, at Austerlitz, a ball which remained *enclavé* in the left parietal bone. He died in 1827. I found it between the two osseous tables. There was no exostosis on the outside of the skull; but within, an osseous vegetation existed of the size of half a pullet's egg." ‡

This is certainly a remarkable case, particularly in what regards the "*osseous vegetation*," and it cannot be taken as the general rule. On the contrary, it stands almost alone, if we except that certain induration which is described as occupying the place of the cyst in the soft parts, but which should not be regarded as exostosis.

* Manuel du Chirurgie d'Armée. Paris, 1792.

† Chirurgie d'Armée, ou Traité des Plaies d'Armes à Feu, et d'Armes Blanches Par M. Ravaton. Paris, 1768.

‡ Clinique des Plaies d'Armes à Feu. Paris, 1836.

Dupuytren says of balls lodged in bone, that "they very seldom remain there without producing grave accidents. A great number of observations might be cited, which prove that caries and necrosis are almost always the result of a ball in the bony tissue." *

Guthrie advocates the same doctrine. "If the ball is lodged in the head of a bone, and not extracted, it generally produces disease of the bone, and caries of the articulation. If it is in the body of a long bone, it generally gives rise to necrosis." †

Picton relates a case of a soldier who had the point of a lance, two and a half inches long, broken off in the scapulo-humeral articulation, passing into the head of the humerus. It remained there eight weeks, without producing the "slightest accident," when he extracted it.‡

It were easy to multiply instances of this kind. Those already presented, taken in connection with the results of experiments on the bones of animals, which will be reported hereinafter, are, however, sufficient to show that most metallic bodies lodged in contact with bone, do not give rise to callus, or produce grave accidents, except when, as in the case of balls, they have been projected so violently as to injure the texture of the bone.§

Experiments upon the bones of animals very perfectly illustrate this point. In those most admirable ones, for example, of Flourens,‖ undertaken with the object of illustrating the growth of bones and the formation of callus, the pins which were passed through the bones of rabbits, the wires which were placed around them, and the pieces of metal inserted beneath the periosteum, all remained without giving rise to more than very slight change in the bone (and this change consisted in an absorption of the tissue adjoining the foreign substance), which happened whether the metallic body was lodged beneath the periosteum, in the substance of the bone, or in the medullary cavity.

* Traité Theorique et Pratique des Blessures par Armes de Guerre.

† On Gun-shot Wounds, pp. 91, 93.

‡ Recueil de Memoires de Medecine, de Chirurgie, et de Pharmacie Militaires. 1822. Vol. xi., page 226.

§ For other cases of balls, points of lances, daggers, needles, etc., lodged in bone, the reader is referred to the Gazette Medicale, 1848, page 151; Larrey's "Relation Medicale," page 193; Dict. des Sciences Medicales, in 60 vols., Art. Corps Etrangers.

‖ Théorie Experimentale de la Formation des Os. Paris, 1847.

Foreign bodies thus placed may give rise to inflammation resulting in a gradual alteration of the periosteum, which produces a roughened surface of the bone. Examples of this kind may be found in nearly every work upon military surgery, and specimens are scattered here and there, in different pathological collections. A remarkable example is presented at the Museum of Val-de-Grace. In this case, chronic inflammation had gradually altered the structure of muscles and ligaments, producing immobility; and this, with the inflammation of the bone, resulted in an anchylosis of the hip joint.

Metallic substances lodged in contact with the spongy substance of bone, in many cases produce effects not at all different from those resulting from their presence in the compact tissue; but they are more likely to produce absorption.

A remarkable example of this kind, from the Museum of Val-de-Grace, is represented in fig. 2, plate 1. In this case, the ball had in process of time, produced a large cavity, occupying the head and neck of the bone; but whether it was with or without suppuration, we are unable, from the absence of a history of the case, to state with certainty.

DIVISION II.

On the Action of Metallic Bodies so placed as to produce, and keep up, Suppuration.

In this case, their effects do not differ from those of non-metallic bodies. The surface with which they are lodged in contact, is soon covered with granulations, and the bone itself is absorbed from the contact of the metallic body; and if it be removed, cicatrization takes place and the cavity is gradually filled up.

Specimens of this kind, existing in museums, must be rare, unless, indeed, some which I have already referred to under a former head deserve to be placed under this. From the absence of the history of these cases, it is not easy to determine this point with certainty. The subject, however, is very readily illustrated by experiment.

A piece of iron wire was passed through the radius of a young dog, near its surface, and left projecting externally. At the end of ten days it loosened, and fell out. At the end of eighteen

days, the notch which it had produced was partially filled up, but still presented the appearance shown in fig. 6, plate 1.

SECTION SECOND.

On the Action of Non-metallic Bodies placed in contact with Bones.

Non-metallic bodies remaining in contact with bones, almost invariably produce suppuration; and if there are exceptions, it is where they are excessively small, or in circumstances very peculiar.

Effects of Setons.

In order to illustrate this part of the subject, I made experiments upon the bones of dogs with setons, it being important to understand accurately the effect of a means so often resorted to in surgery.

1st. I placed a seton composed of a bit of cotton twine doubled, on the surface of the radius of a young dog, beneath the periosteum, and between it and the ulna.

At the end of eighteen days, a deep notch was found, comprising about one-third of the diameter of the bone. The ulna, which was distant from the seton about one line, was not affected. This radius is represented in fig. 5, plate 1.

2d. I passed a seton of woolen yarn in contact with the tibia and fibula of a young dog, allowing it to remain twenty-nine days. At the end of this time a deep notch was found to have been produced, at the bottom of which the bone was in a state of necrosis. The epiphysis of the lower end of the bone was partially separated. (See Fig. 3, Plate 1.)

3d. I passed a seton, composed of threads of silk, over the surface of the tibia and fibula of the same dog. At the end of twenty-nine days, a slight notch was found, perfectly smooth and uniform. (See Figure 4, Plate 1.)

The results of these experiments prove conclusively, that setons composed of the three substances made use of, produce absorption and inflammation of the bone,—woolen most, next cotton, and silk least of all.

Effects of Wood.

Pieces of wood, when brought in contact with the bone, do not differ in any respect, in their effects, from setons. They produce inflammation and absorption, of which the following experiments may serve as illustrations.

I perforated the tibia of a young dog, at its middle, and inserted a peg of wood which perfectly filled up the hole. The peg was broken off on a level with the bone, beneath the skin. At the end of eighteen days, it was found to be surrounded by pus, a small abscess extending upon each side of the bone, beneath the skin; and the hole itself, was found three times the size when first made. The surface of the piece of wood was entirely unchanged. (See Fig. 8, Plate 1.)

Effects of Bone and Ivory.

These are best illustrated by the action of sequestra; the dead bone resembling in every respect, a foreign body.

The first action which takes place between it and the bone adjoining, still endowed with vitality, is absorption.

Does this absorption take place upon the dead, or upon the living portion, or both?

Flourens* relates the following experiments, which he considers conclusive upon that subject. He placed a piece of the rib of a rabbit in the medullary canal, and in contact with the bone of a dog. Finding at the end of a certain time, that this was diminished in size, he draws the following inference; "The medullary membrane absorbs bone."

Placing a piece of the rib of a rabbit beneath the periosteum, and in contact with bone, and finding at the end of a certain time that it was diminished in size, as in the other case, he draws this inference; "The periosteum absorbs bone, like the medullary membrane."

It will be evident upon a moment's reflection, that neither of these deductions results from the premises. In the experiment of the piece placed beneath the periosteum, it required twenty-six days to produce an irregularity upon the rib of the rabbit. In that of the piece placed within the medullary canal, the effect was much the same. Before drawing such an inference, it is

* Op. cit.

necessary to know what is the effect of the temperature of the body, and the fluid of an abscess, upon the rib of a rabbit thus macerated for a certain length of time. This is a point now perfectly understood. "The ossific granules are generally discoverable in pus which escapes from a necrosed bone. If a specimen of this pus be examined with a power of five hundred diameters, a quantity of minute granular matter, readily soluble in dilute muriatic acid, may be distinguished among the pus corpuscules. This fact I noticed many years ago; but Mr. Bransby Cooper has ascertained, by chemical examination, that a large amount of phosphate of lime is present in such pus."* Mr Gulliver has made the experiment of placing pieces of bone in contact with the tissues for many months, without in any case finding them absorbed.† In the case of sequestra, it is sufficient to examine a certain number carefully, to see that they are disintegrated by maceration. This takes place first, and most rapidly, at the softest part; and as readily from its interior as at the point where it is in contact with living tissue.

Malgaigne gives figures of splinters which, at the end of seven years, were scarcely marked on the external surface.

Already had Dufouart stated, in regard to the sequestrum,—"Sometimes it produces an abscess, sometimes it establishes an interstitial maceration which penetrates by degrees the piece of bone, and separates its fragments, which pass out, aided by the macerating fluid." He claims to have discovered this fact.‡ In regard to the pieces placed beneath the periosteum by Flourens, it would be quite as correct to say that they had been absorbed by the vessels of the bone, as by those of the periosteum.

The same objections may be urged against the inference that the medullary membrane absorbs the piece of bone left in contact with it; and the experiments which determine the action of fluids and a certain temperature upon the rib of the rabbit, are equally applicable to this case.

The following are the changes which I have observed to take place in bones affected with necrosis, and which result entirely from the presence of the sequestrum as a foreign body:—

1. An action of absorption which takes place in the living

* Lectures on Histology, by John Quecket, London, 1852.

† Med. Chir. Transac. 1838, vol. 21.

‡ Analyse des Blessures d'Armes à Feu. Paris, 1801, page 204.

bone, precisely in the same manner as around the piece of wood when placed in a perforation of bone; and if the surface of the sequestrum is irregular, while that of the wood is unaffected, it is not because the vessels of the bone itself have been able to extend themselves from the living to the dead part of the bone, and thus absorb it,—but because the sequestrum is composed of substances capable of being affected by maceration, and that unequally, the disentegration being most rapid where the bone, from inflammation or natural structure, is spongy, slowest where it is most compact. Fig. 3, plate 2, represents a sequestrum where absorption of the bone around it had commenced.

2. The next action which takes place, is the formation of new bone around the sequestrum, thus inclosing it, as it were, in a case. The absorption which had taken place in the living bone, is observed to be arrested in certain points, and continued in others. The absorption continues, or takes place, at those points where the sequestrum lies in contact with the old or the newly formed bone. Formation takes place wherever the sequestrum recedes from the surface of the bone. The points at which the sequestrum will press upon the bone are determined by the position of the member, the effect of gravity, the contraction of muscles, etc. In necrosis of the femur, as the patient generally lies upon his back, or walks about with the member in a semiflexed position, the sequestrum ordinarily falls backwards and downwards. The spongy portion of the femur, at the lower end, being absorbed earliest, the sequestrum finds its way into the popliteal space, particularly if it comprise a large part of the shaft of the bone. If the patient walk about, it not unfrequently happens that the sequestrum descends so as to strike upon the surface of the tibia, and produce absorption of it. An example of this kind is found in the Musée Dupuytren, and is represented in fig. 2, plate II.

In case of necrosis comprising a large part of the shaft of the tibia, the sequestrum generally projects in front and below, being drawn thither by gravitation, and by the action of the muscles, which naturally draw the ankle backward. Where there are several small sequestra, separated to a certain distance from each other, they give rise to numerous openings in the newly formed bone, which are produced by the contact of fragments, and close up whenever these are dissolved or removed from contact with them. We thus explain the existence of numerous openings lead-

ing to the same cavity, concerning which so much speculation has been wasted. It is not possible to suppose that several large openings would be produced and kept up, only for the purpose of allowing the escape of a few drops of pus daily. This would require but one small opening.

We have now arrived at a point where we may pause for a moment, to consider the practical application, to surgery and to physiology, of the facts which we have passed in review. They justify the following deductions:—

1. Foreign bodies of every kind, placed or allowed to remain in contact with any part of a bone, in a manner to keep up suppuration, produce absorption of it, and have no tendency whatever to give rise to the production of callus. The use of setons, pegs, wires, and foreign bodies of every description, as a means of promoting the formation of callus, is a practice not founded on correct principles, and is often dangerous. The seton is more properly employed for the purpose of dividing a bone, or keeping up a false articulation, than for uniting it.

2. Sequestra and foreign bodies imbedded in bone, may be brought to the surface when, by perforation or otherwise, instruments or ligatures can be so attached to them as to draw them permanently, with but a moderate degree of force, in that direction. As soon as they press against the living bone, they cause its absorption in the direction towards which they are drawn.

3. That power of absorption of bony tissue attributed to the periosteum and the medullary membrane, exists also in the substance of the bone itself, as is proved by the insertion of pegs into perforations of bone; absorption taking place around them not only at the surfaces, but at all the intervening points. We have employed the term absorption, in accordance with received usage, to indicate that enlargement of the perforation which takes place around the peg, although it is not certain that the bone is absorbed. It is quite as likely that it is disintegrated by ulceration.

CHAPTER II.

ON THE EFFECTS OF FOREIGN BODIES ON THE FORMATION OF CALLUS.

We have shown that foreign bodies have no tendency to produce callus, and that they produce, with very few exceptions, more or less absorption of the bony tissue.

We now propose another inquiry, intimately connected with the former, but distinct from it, viz.:—

Have foreign bodies a tendency to prevent the formation of callus, and if they have, to what extent?

This point is best illustrated by a reference to those cases of fracture in the human subject, where, from injury of the bone, the extremities have fallen into necrosis, or where detached fragments have been left between them.

A very perfect example of the first form of these cases is to be found in the collection of the elder Guy,* and he has had the kindness to place it at my disposal for the purposes of this Essay. It is a fractured femur, with the extremities of one of the fragments in a state of necrosis. This necrosed piece is surrounded by a large cavity, no callus having formed within a considerable distance from it. A shell of callus had been found at a certain distance around it; but as the necrosed piece had gradually pressed to one side, this had been absorbed at one point, so as to leave the opening represented in fig. 1, plate 2.

An example of the second form of these cases is to be found in the Museum of Val-de-Grace. A small fragment of bone remaining between the two extremities of a fracture, union took place by means of two bands of callus, separated by an interval, in which the fragment was lodged.

Dupuytren describes this perfectly. Speaking of splinters of bone, both primary and secondary, he says they are eliminated in the same manner as sequestra. "As long as this work remains unfinished, the extremities of the fractured bone cannot unite. Nevertheless, an osseous ferrule at length forms, which unites them at their circumference."†

* Rue de l'Ecole de Medicine, Paris.

† Dupuytren, Traité Théorique et Pratique des Blessures par Armes-de-Guerre

M. A. Berard cites a case of Rossi, where a ball, lodged in the medullary canal of the humerus, formed an obstacle to reunion. M. Vogelvanger treated, and cured in sixty-four days, a fracture of the femur with an external wound. Two years afterwards, the subject being dead, there was found, on examination, a piece of iron, thirty lines long, projecting half its length from the callus. Malgaigne justly cites this as an exceptional case, and also gives the figure of a jaw broken by a charge of shot, where the pieces of lead were found imbedded in the callus, and adds, "I possess among my drawings the figure of a fracture of the femur, produced by a ball which remained between the two fragments, as is shown by the vacant space which separates them. Solid callus had united them behind."* It will be noticed that metallic bodies had less effect than non-metallic ones.

It were easy to multiply examples of this kind, of which every pathological museum furnishes more or less; but this is unnecessary. The facts which are here presented, justify the conclusion that foreign bodies which keep up suppuration, prevent the formation of callus to a certain distance around them. Taken in connection with the facts before presented, they justify this additional conclusion, that foreign bodies produce absorption of callus when placed in contact with it. The practical deduction may be drawn, that setons, pegs of ivory, etc., are suitable remedies to be employed for promoting the absorption of deformed callus and certain exostoses.

All the facts which we have thus far stated might readily be inferred without any experiments or examples, if viewed by the light of a simple principle of pathology; viz. that a blastema, converted into pus, is discharged from the body, and a loss of substance is the result; but the formation of a new tissue cannot result from blastema operated upon in that manner.

* Traité des Fractures, page 1847, 1848.

CHAPTER III.

ON THE EFFECTS OF MEDICINAL SOLUTIONS WHEN PLACED IN CONTACT WITH BONES.

Although foreign bodies which produce suppuration necessarily give rise to the absorption of the tissues with which they are placed in contact, it does not by any means follow that absorption necessarily results from the application of fluids. We find that solutions of iodine have been injected between the extremities of fractured bones, with a view of producing union. So far as these solutions are supposed to act upon the soft parts, they do not come within the province of this Essay. So far as their action upon the bones themselves is concerned, we have found their effects, thus far, to resemble those of foreign bodies, viz. to produce inflammation and necrosis, and to prevent the formation of callus.

The following experiments will serve to illustrate this point:

1st. The tibia of a young dog being perforated, the opening made was filled with a solution of iodine, gr. x., and iod. pot. gr. xxx., to the ounce of distilled water. This was pressed into the perforation with some force. At the end of eighteen days, the surrounding bone was found to be necrosed; the necrosis extending along its shaft, from the solution having been pressed into the medullary cavity. As this bone was already in a state of inflammation, from the application of a seton at a point below, it is probable that the effect of the injection was more extensive than it would otherwise have been.

2d. The experiment was accordingly repeated, by injecting the solution of iodine, in the same manner, into a bone which was unaffected.

At the end of eighteen days, the perforation in the bone was found still pervious, a slight layer of the bone about it was necrosed, and the periosteum, on either side, thickened by the deposition of callus, as in the commencing formation of new bone. This experiment was repeated with a small quantity of the solution, with the effect of producing absorption. See fig. 12, plate 1.

3d. The tibia of the same dog being perforated in the same manner, a solution of muriatic acid, three drops to the drachm of

distilled water, was pressed into it. At the end of eighteen days, the only trace of the perforation was a slight depression on each side of the bone.

4th. The tibia of a dog being perforated, a saturated solution of the lactate of iron was pressed into it. At the end of eighteen days, the only trace remaining was the depression shown in fig. 12, plate 1.

CHAPTER IV.

ON THE EFFECTS OF FOREIGN BODIES IN THE ARTICULATIONS.

UNDER this head we may quote the curious case from Percy: "Framboisier has seen a ball remain with impunity in the knee, and show itself under the skin long after the cicatrization of the wound. Daniel Ghol took another from the foot, which was only displaced after thirty years."*

This would indicate that the effects of foreign bodies do not differ from those of bones, the presence and consequences of which, in the articulations, are so well known in those cases where the wound heals without destroying the articulation.

It is not, however, to be expected that such an injury will usually fail to destroy the joint. Brodie quotes a case in which disease of the elbow, requiring amputation, resulted from the presence of a ball in the center of the bone near the joint.†

CHAPTER V.

ON WOUNDS OF BONE AND THE CIRCUMSTANCES IN WHICH THEY MOST READILY GIVE RISE TO CALLUS, OR UNION WITHOUT IT.

THIS subject may most readily be considered under the following heads:

1. Simple wounds of the bone without fracture.
2. Simple fracture.
3. Wounds communicating externally, which may be called compound wounds, and compound fractures.

* Op. cit. p. 165. † Surgical Lectures, p. 178.

SECTION FIRST.

Simple wounds of the bone without fracture.

By a simple wound of the bone without fracture, I mean one in which the tissue of the organ is more or less injured, without such a division of the skin as to lead to suppuration.

This may consist—*a.* Of simple separation of the periosteum from the bone, with slight injury of its surface; *b.* Of interstitial fracture; *c.* Of mechanical division of the bony tissue, with or without wound of the periosteum; *d.* Of division or separation of the medullary membrane, with wound of bone; *e.* Of wounds of the articular cartilage.

I now proceed to a discussion of these several subdivisions:—

a. From the experiments of Hunter and others, it was concluded that the periosteum alone possesses the power of nourishing the bone, of contributing to its growth, and of repairing its injuries, and that, consequently, the separation of the periosteum is necessarily followed by necrosis.

The error of this doctrine is now so universally recognized, that it is unnecessary to add any new facts to disprove it.

The following quotation from Todd and Bowman expresses, fully and perfectly, the fact in regard to the function of the periosteum:—"Bone does not grow on its exterior surface because the periosteum is there. The only part this membrane takes in the deposit of new bone, is by the vascular network mingled with its fibrous tissue, which does not differ from that on other portions of its osseous surface."*

The circulation and nourishment of bony tissue, when interrupted in certain parts, may be supplied from others, in the same manner as in the soft parts, although not to the same degree. Thus, suppuration of the periosteum can take place, to a certain extent, without causing the death of the superficial layers of bone from which it is detached. This part, under such circumstances, receives its circulation through the Haversian canals. The extent, however, to which this can be done, is limited. When accompanied by an external wound and suppuration, the superficial layers die, if the separation be considerable. If, on the other hand, it be made without wound of the skin, or by subcutaneous

* Physiological Anatomy: Physiology of Man, page 123.

wound, the extent to which it can be carried without producing necrosis is much greater. But the limits, in this respect, have not yet been accurately determined. As a means of illustrating this point, I perforated the skin and separated the periosteum, upon the external side of the humerus of a dog, to the extent of an inch in length and three-fourths of an inch in breadth. No suppuration followed, but at the end of eighteen days, there was only the slightly roughened surface at the point of denudation, which had been produced by the operation. There was no necrosis, and no appearance of callus.

b. The existence of interstitial fracture, and its reparation without leaving traces behind it, are facts of recent discovery, and at the present time are but little known. It was first noticed, so far as I know, by Barton, of Philadelphia, as occurring in the bones of children; and he calls it "bending." It has since been observed by many others. Gulliver cites six or eight cases occurring in different bones.* It has been found, taking place in an entirely different manner, in the bones of rachitic subjects. In either case it consists of the separation of a certain number of the canals forming the substance of bone, without a rupture of the periosteum. It may exist in every degree, from a fracture almost perfect to one in which the number of bony canals separated is so slight as not to be perceived by the naked eye. The manner of its reparation has never been fully investigated. It is not by the deposit of perceptible masses of callus, but seems to be by a simple deposit, which restores the continuity of the osseous canal and its walls.

c. The effect of mechanical division of bone, without fracture, is best illustrated by perforating, with a suitable instrument, the shaft of a bone, making so small an opening in the soft parts as not to give rise to suppuration. The effects observed as resulting from this experiment may be noted, until complete reparation is effected. They relate, 1st. To the manner in which the perforation is filled up; 2d. To the manner in which the bony tissue around it is affected.

On examining a bone which has been perforated in this manner, a few hours only after the perforation, the opening made is found filled with a fluid which appears to be serum, mingled with blood corpuscles. At the end of six days this is found to be of car-

* Gazette Medicale, 1835, p. 472.

tilaginous firmness; and at the end of ten days, the ossification is complete. At the end of six days, the periosteum is found thickened and vascular around the point of perforation, being raised in such a manner as to present the appearance of a tubercle upon the surface of the bone. At this time it can be readily cut with the thumb nail. The bone beneath it, and around the perforation, is softened, the vascular canals increased in size, and the earthy matter diminished in quantity; while the bone is increased in diameter in the direction in which it has been perforated. At the end of eighteen days, the tubercles upon the surface, which had been formed beneath the periosteum, and by it, are perfectly converted into bone; the medullary cavity is partially filled with callus, the opening entirely filled with new bone, and the structure of the old bone restored to its natural state, excepting slight remains of vascularity and enlargement. Fig. 7, plate 1, represents the tibia of a dog perforated at two points, and the tubercles of bone projecting on either side. The effect of inflammation resulting from wound of bone in softening and thickening the bony tissue, is so well understood that it would be superfluous to dwell upon it. The effects of perforation of bone in producing callus, in contrast with those of simple scratching of the surface, constitute a point of practical importance to which attention is particularly directed.

d. The opinion has extensively prevailed, that separation of the medullary membrane is followed by necrosis of a certain portion of the bone. But that membrane does not differ in this respect from the periosteum. It may be separated to a limited extent without giving rise to necrosis. This I have proved by scratching it with the point of a perforator, after perforating the bone transversely, and then obliquely upwards and downwards.

e. This is a species of accident which rarely occurs in the practice of surgery; but it can readily be produced by experiment. It is important that it should be observed, in consequence of the light which it throws upon the subject of false articulation; for although false joints differ in some respects from the true, they nevertheless have other points in common. They are bony surfaces, extremely compact, not perforated by vessels passing from without inward; and consequently wounds of them are not attended by the same appearances as those which take place upon the surface of bone.

Experiment.

I perforated the articulation of a rabbit through the olecranon and into the extremity of the humerus. A little inflammation followed. At the end of ten days the animal was killed. The mark of perforation existed, without any other change of the cartilage; and the perforation in the bone was quite filled up.

SECTION SECOND.

Of Simple Fractures.

There are two points upon which the descriptions which have been given of the manner of reparation of simple fractures, do not impart an accurate idea of the reparation of a wound entirely confined to the bone.

1. A large part of the phenomena observed, results from the injury done to the soft parts, which delays the formation of callus.

2. The movements which take place tend to delay the formation of callus, thus preventing us from obtaining a knowledge of the shortest time, and the most simple manner, in which this can be effected.

According to Lebert, who experimented upon the bones of rabbits, "very fine fibres and globules may be found between the extremities of the fracture, on the fourth day. This is the commencement of the formation of cartilage. On the sixth day, the cartilage corpuscles were perfectly formed, and the callus uniformly cartilaginous. On the tenth day, ossification was commenced on the fragment of fractured bone. A decided vascularity was noticed on the fourth day, and on the seventh day the extremities and surfaces were softened."

It will be seen that the effects of perforation do not differ from those of simple fracture, excepting being less violent, and more readily repaired.

SECTION THIRD.

Compound Wounds of Bones, and Compound Fractures.

Compound wounds, as well as compound fractures of bones, are repaired by suppuration and granulation, in a manner very analogous to abscess, or wound of the soft parts. Where the

bone is divided in compound fracture, the granulations spring first from the medullary membrane, and gradually spread towards the circumference, as may be witnessed on the extremities of bones projecting from the stumps of amputated members. When the wound is on the surface of the bone, the granulations spring first from the most spongy part, and gradually spread over that which is more compact. In either case, the bone is rendered softer and more vascular beneath them.

The difference between subcutaneous and open wounds of the soft parts, corresponds to that between simple and compound fractures.

The latter are not only much more serious, but are united more slowly than the former. The difference is so well understood, it need not be dwelt upon.

SECTION FOURTH.

On the State of the Parts in Ununited Fracture.

Norris enumerates four different species of false joint:*

1st. Where the fragments are surrounded by cartilaginous substance.

2d. Where the fragments are not at all united, and float loosely among the tissues.

3d. Where the fragments are united by means of fibrous tissue.

4th. Where there is a true articulation, with a fibrous capsule, synovial membrane, and articular cartilage.

In the last two species, the extremity of the fragment is often covered by a layer of bone, of ivory hardness. The medullary cavity is filled, and the tissues between the extremities are possessed of scarcely any vascularity. As an example of the condition in which the bones are most frequently found in ununited fracture, we quote the following case from Lebert:†

"A man fifty years old, had a fracture of the superior third of the humerus, which was not consolidated; and a false articulation formed. The fragments were very movable, and were surrounded by a fibrous and ligamentous mass, which formed around them a

* American Journal of the Medical Sciences, Jan. 1842, p. 19.

† On the Formation of Callus, p. 20.

kind of new articular capsule. Around the fragments, and upon their extremities, is found a bluish-white substance in which the microscope discovers all the elements of true cartilage."

Another example, exhibiting the same fact, is found in the Musée Dupuytren, in a case of ununited fracture of the clavicle, which is represented in fig. 11, plate 1.

Dupuytren, as is well known, considered obliquity of the fracture as one of the most frequent causes of non-union; and A. Bèrard states that the surfaces of false articulations were oblique in almost all the cases in which surgeons have undertaken a cure. I think this opinion well-founded; and if it appears otherwise in old cases, it is from the change which the fragments have undergone, from absorption.

CHAPTER VI.

ON THE TREATMENT OF UNUNITED FRACTURES.

The facts and observations thus far presented, are intended to serve as a basis for practical deductions, relating only to the two principal objects of this Essay; and not, by any means, as a monograph on injuries of the bones.

I have preferred this method of treating the subject, to that which consists in collecting cases treated in any particular manner, from the difficulty in arriving at correct conclusions by the latter course. Every method of treatment for ununited fracture, appeals to experience in proof of its success; and cases are not unfrequently quoted in this way, which, if properly understood, would prove exactly the reverse of that which they are supposed to demonstrate.

Thus, the first case of ununited fracture of the humerus treated by Dr. Physic successfully with the seton, has been received as strong proof of the utility of that method. But when we know that at the death of the patient, several years afterwards, a callus was found, divided into two parts by a perforation in the middle, which marked the point where the seton had been placed, we perceive that the case does not demonstrate that during the treatment callus was formed at that point,

and that it confirms the cases and experiments which we have already cited in proof of the effects of foreign bodies upon the formation of callus.*

It is the same with some cases treated by passing wires around the extremities of the fragments, and in which, after the cure was supposed to be perfect, an abscess formed that could not be healed until a small fragment of necrosed bone had been withdrawn from it. I think, therefore, that experiment, and a reference to well-established facts of physiology and pathology, constitute the method which is to be preferred, as calculated to lead to just conclusions, in this as well as in all other cases where such a method is applicable.

No one can deny the necessity of further investigations of the subject before us, since a considerable number of cases of ununited fracture are still condemned to amputation, or abandoned as incurable.

I shall, therefore, proceed to speak of some of the principal methods which have been resorted to, judging them in the light of the facts which I have presented, and agreeably to well-established principles of pathology.

It will not, I think, be doubted, that the object to be aimed at, in the local treatment, is to bring the ancient fracture as nearly as possible to a simple and recent one, without the contusion and injury of the soft parts attending it. The facts which have been herein presented, and the well-known dangers attending compound fractures, sufficiently indicate the disadvantage of the operation of re-section, which is the production of a compound fracture, of a dangerous kind, most frequently of the humerus or the femur. Hence, we find that this operation is generally recommended only as a last resort.

I think also, that it has been sufficiently demonstrated herein, that the insertion of foreign bodies between the ends of the bones or near them, is a practice not founded in correct principles of surgery, because it tends to produce absorption of the bone, prevent the formation of callus, and convert the blastema into pus.

Malgaigne, one of the most distinguished writers on this subject; says that "this long permanence of the seton established as a general rule, is a true *contre-sens;*" and adds that

* A figure of this bone, with the opening very imperfectly shown, may be found in vol. vii. p. 268, of the "American Journal of the Medical Sciences."

"eight days will sometimes suffice, and in other cases fifteen or twenty will be required."

As the object of Dr. Physic, in using the seton, was probably to produce between the fragments that semi-cartilaginous tissue often noticed as forming the walls of old fistulæ, it is difficult to perceive *à priori*, why the recommendation of the seton for this purpose, for a long time, should be more an absurdity than its use for a few days for the purpose of producing an acute inflammation of the soft parts. I think both methods equally defective. In regard to the use of metallic substances, caustic, ivory pegs, etc.; they are subject to the same objections as the seton, and do not appear to possess any advantage over it. The disintegration of the ivory pegs, when thus placed, is sufficiently accounted for, by what has already been stated in regard to the maceration or erosion of sequestra. Even admitting that a certain part of the ivory is absorbed, it is difficult to perceive the advantage likely to be derived from that circumstance.

I am well aware that the numerous cases of success by means of those different methods of treatment, which consist in the introduction of foreign bodies of various kinds, will be regarded by some as invalidating the principles that I have endeavored to establish in regard to the effects of such substances.

In answer to those who would make objections of this kind, the following remarks will be sufficient. The success of the seton, as well as of all similar methods, does not result from any tendency to favor the formation of callus, but from the induration of the soft parts produced by it. The extremities are thus rendered less movable; the tenderness which results from their use favoring perfect rest, by rendering all movement very painful. These beneficial effects of the seton are not sufficient to produce a favorable result in difficult cases; and if the tables which have been published seem to disprove this statement, it is owing to two causes:—

1st. These tables present only the most favorable cases in which it has been used; the unsuccessful cases not being reported.

2d. For some time past the most difficult cases, such as those of the humerus and femur, of long standing and attended with great mobility, have not been treated in this manner.

We have the authority of Gibson* and Norris† for stating

* Institutes and Practice of Surgery, vol. i. p. 311.

† American Journal of the Med. Sciences, vol. iii. N. S., p. 50.

that, in cases of this kind, Dr. Physic himself did not recommend the use of the seton.

In regard to its beneficial effects, I think these can be obtained by another method, possessing all its advantages, besides many others, and attended by none of its inconveniences and dangers.

At the present time, when almost every surgeon has performed re-section and used the seton, it may seem presumptuous to question the propriety of resorting to these methods of treatment. I therefore add a single opinion, that of Larrey, whose authority in practical points is so well known. In his work, "Memoires de Chirurgie Militaire," published in 1812, vol. ii., pp. 132, 133, he expresses the opinion that it is better to leave those cases to nature which are incurable by other means, than to resort to either the seton or re-section, on account of the great danger of both these operations.

In 1841, in his "Relation Medicale de Campagnes et Voyages," p. 109, he states that after his experience and observations in different countries, and particularly in London, his views in this respect were confirmed. It may therefore be stated, as a general rule, that all operations which produce suppuration should be avoided.

Should the operation performed bear principally upon the soft parts, or upon the bones themselves?

This is a question which Malgaigne decides in favor of the soft parts, but perhaps without assigning sufficient reason for preferring that manner of operating exclusively.

According to that principle known as the "law of analogous formation," a blastema is converted into the same kind of tissue as that with which it is in contact, and from which it has been effused.

"The blastema between areolar tissue becomes areolar tissue. At the extremity of divided nerves it forms nervous substance, etc." *

If the principle be correct, that an ancient fracture should be reduced as nearly as possible into a simple and recent one, with the difference we have mentioned, it is certain that the operation to effect this object must be directed both to the bones and the soft parts at the same time, but in a greater degree to the bones.

* Vogel. Pathological Anatomy; edition of Philadelphia, 1847, p. 112.

The careful examination of a false joint serves to show that something more than an irritation of the soft parts is required to form callus upon surfaces already incrusted with cartilage, and surrounded by ligamentous tissue. The object to be desired in these cases is, as it appears to me, the production, by sub-cutaneous wound, of fresh osseous surfaces, opposite to and in contact with each other; with such division of the soft parts as will excite a moderate inflammation, without suppuration, around the false joint; and a wound of the bones, of considerable depth and size, capable of producing that vascularity and softening always noticed in fractured extremities of bones before union takes place. These fresh surfaces, in some cases, require to be numerous, and equal in the aggregate to those produced by resection; and the operation by which they are made should be repeated from time to time. Hence, it must be an operation which does not expose to violent inflammation, or give great pain. It should, moreover, be one capable of being employed in connection with other methods, recognized as useful or necessary to preserve immobility.

I am not aware that any one has hitherto devised an operation capable of effecting these objects. Many, undoubtedly, have sought to attain this end; but the results at which they have arrived have fallen far short of the object at which they aimed.

Division of the fibrous tissue between the extremities of the bones, is said to have been put in practice by Blandin, but without success. In more recent times, this method has been recommended by Miller, of Edinburgh, who seems to consider himself the inventor of it, although it does not appear that he ever put it in practice. He says, "When the principle of sub-cutaneous incision came into use, the idea struck me that it might be made available towards the remedy of ununited fracture; and, accordingly, I proposed that a strong needle having been passed obliquely down to the bone, should have its edge freely moved about in all directions, so as to cut up the ligamentous bond of union, as well as the dense investment of the ends of the bone."*

The same method has been used by Sanford, in America, who considers himself the discoverer of it.

The difference between this plan of treatment and that by

* Principles of Surgery, Philadelphia edition, 1845, p. 502.

perforation, is sufficiently apparent, and does not require to be further dwelt upon.

The instrument which I have invented for this purpose is a perforator, capable of penetrating the hardest bone or ivory with facility in any direction. It is represented in fig. 5, plate 2, reduced one half. It consists of a handle, into which points of different sizes may be inserted, as occasion requires.

In the construction of these instruments, I have desired to have the point made somewhat awl-shaped; but more pointed in the middle, rather than like a drill, which leaves chips.* I have not found in any case, either in experiments upon the bones of dogs or rabbits, or in operations on the human subject, that there was a tendency to suppuration from the chips, and am, therefore, now of the opinion that the small fragments separated by the instrument are not likely to give rise to inconvenience. As some of my friends have expressed doubts on this point, which may be shared by those who have not given attention to the subject, I beg to add the following extract from Hunter, which will show to what extent he supposed reunion of fragments entirely separated, might take place:—

"Adhesion of the detached splinters also takes place, not only in those which are attached to the soft parts, but even in such as are entirely loose. (This was shown in a thigh bone in which one of the splinters had turned quite around on its axis, and adhered by its outer surface to the bone.) I never examined a compound fracture without finding some of those loose pieces, which shows they must be common. Their union must be similar to that in the transplanting of teeth."†

Prof. Walther, of Bonn, states that he has seen the disc of bone, separated by the crown of the trephine and entirely removed, reunited when replaced, not only in dogs, but on the human subject.‡

The manner of using it is as follows: in case of an oblique fracture, or one with overlapping, the skin is perforated with the instrument at such a point as to enable it to be carried through the ends of the fragments, to wound their surfaces and transfix whatever tissue may be placed between them. After having

* Tiemann, of New York, has made me excellent ones of this kind, as Luer, of Paris, did of the drill form.

† Works of John Hunter, edited by James T. Palmer, vol. 1, page 502.

‡ Medico-Chirurgical Review for 1822, page 400.

transfixed them in one direction, it is withdrawn from the bone, but not from the skin, its direction changed, and another perforation made; and this operation is repeated as often as may be desired. It is better to commence, in most cases, with not more than two or three perforations, in order that the effect produced shall not be too severe.

On withdrawing the instrument, collodion is to be placed upon the point of puncture.

Fig. 7, plate 2, and fig. 11, plate 1, where the instrument is represented as being applied upon oblique fractures, give a better idea of its application than can be conveyed by description. In case of fracture where the extremities are differently situated, it must be applied in a different manner, and in such a way as to effect the object proposed, viz. profound as well as superficial wounds of the extremity of the fragments; and a division of the tissue which is situated between them. In cases where there would be liability of injuring vessels, from the instrument passing too deeply or slipping from the surface of a bone, I have devised means for regulating its action, which will be understood by a glance at fig. 4, plate 2, and the description given of it in the explanation of the plates.

Each of the different parts of the operation which we have described, is essential to its success. The division of the tissue situated between the fragments, would, of itself, have but little effect; combined with scratching their extremities, its effect is not great, as we have demonstrated by experiment; but when accompanied by wounds of the bone, there is a very permanent and efficient action produced, which puts the extremities in a condition to join the soft parts in effecting union. This can be rendered greater, by increasing the number of punctures, or using an instrument of large size. The operation is to be followed by the application of suitable splints, or apparatus for the purpose of securing immobility. It should be repeated from time to time, and carried to a greater or less extent, as the effects produced may indicate.

The results of this method of treatment will be best illustrated by the cases hereafter reported, in which it has been employed upon the human subject. It may be stated here, however, that neither in my experiments upon the bones of dogs and rabbits, nor in its application in practice, has it been found to produce necrosis, suppuration, or considerable inflammation.

It is necessary particularly to notice these facts, to show that the chips left by the instrument are not sufficient to give rise to suppuration. So prompt is its effect, that, in the cases in which it has been used, not a single week elapsed before decided improvement was manifested. From this circumstance I have been led to suggest the propriety of its use for the purpose of hastening union in ordinary fractures, as well as procuring it where it is much delayed.

It will be noticed that some of the cases in which it has been employed, were not of long standing, and might have eventually united without any operation.

The application of the perforator is so little painful, and so effectual, that I should recommend its employment where union is at all delayed, for the purpose of preventing a false articulation from being formed, as well as for curing it where it has already occurred.

As I have already stated that a simple perforation of a bone is filled up much more quickly than the union of a simple fracture can take place, it will not appear surprising that such an operation should be capable of hastening the union of it. A great part of the time required for effecting such union, is occupied in the cicatrization of the soft parts, and the periosteum; and when this is effected, the bony surfaces are no longer in the condition of recent division. It is at this time that proper perforation may be of use in hastening union, if repeated so as to produce a constant effusion of blastema, as takes place in wounds of the soft parts.

It is for this reason, and because I suppose the treatment proposed is destined to be useful in preventing the occurrence of false joints, as well as in remedying them when established, that I have employed it early in some of the cases herein reported. I consider the views of John Hunter, in regard to the period of union in simple fractures, correct. He remarks, "In the middle-aged, and of good constitution, union will take place in three weeks so as not to admit of perceptible motion. If much longer in uniting, it will be very uncertain at what time this will take place."*

If there is not decided commencement of union at the end of six weeks, I think perforations should be made with a small instrument.

* Hunter's Works, p. 508

The following cases will show what has been done up to the present time, in testing this plan of treatment:—

Case I. Patrick Mullen, *æt.* 36 years, a laborer, of good constitution, was admitted into the Hospital of the Sisters of Mercy, at Chicago, April 3, 1854, for injuries received eight days previously by the premature explosion of a blast in a stone quarry. The right eye was entirely destroyed, left eye nearly so; several severe cuts and bruises about the head and face; muscles of thumb and little finger of left hand torn off; ulna of left forearm fractured near its middle, with oblique compound fracture. Wound of integuments large, and much displacement of fragments.

Owing to the wound of the hand, only short splints were applied to the forearm, which required to be often removed to admit of the dressing of the wound.

It was first examined by Dr. Brainard, May 10, 1854, the period of the commencement of his term of service. At this time the wounds of the soft parts were quite healed, but the fragments of the ulna projected very much backward, were perfectly movable, and scarcely at all in apposition. May 11, two long splints were applied, extending from the elbow to the fingers, which brought the fragments of bone to their proper position.

May 18. The extremities were perforated where they overlapped, at three different points, but one puncture being made through the skin, which, as usual, was made with the perforator. Dressing reapplied.

May 29. Dressings removed, and operation repeated in the same manner, but not in the same points. Dressed as before.

June 3. Repeated the operation. Scarcely any tenderness followed these perforations, and at each there was perceptible firmness.

June 9. Forearm examined, and union found perfect; patient discharged with one splint and a roller upon the limb.

Length of time from the accident to the commencement of treatment, fifty-four days; duration of treatment, twenty-one days.

Case II. This was a case in which judicious treatment had been employed in the first instance; and the seton subsequently resorted to, without success. It was reported by Dr. Brainard, in the North Western Medical and Surgical Journal for March, 1852, and is as follows:—

"Alcott Barnes, *æt.* 26 years, received, June 10th, 1850, a simple fracture, from being carried, by a belt, around a shaft. It was dressed by Dr. Hawley, of Yorkville, Michigan, two splints being properly applied. The dressing was changed perhaps once a week for eight weeks; when the patient consulted Dr. White, of Kalamazoo, who put on carved splints for a month; finding no sign of union, he then put through a skein of silk, for a seton, which was allowed to remain three weeks. It caused much pain and suppuration. When the seton was taken out, a bandage was put about the limb for a week, when splints were applied and continued five weeks. They were then taken off, and no sign was found of union having taken place. Such was the account given by the patient himself.

"Feb. 4th, 1851. Ununited fracture of the radius found above one-third of the distance from the wrist to the elbow, partially overlapped, oblique, movable, and the hand of little use.

"*Operation.*—Having carried the instrument through the skin opposite the fracture, I perforated both fragments where they overlapped. The instrument, being then withdrawn from the bone, but not from the skin, was directed obliquely downwards so as to make three perforations. It was then entirely withdrawn, and collodion put upon the puncture of the skin. The member was dressed with the immovable apparatus. Some tenderness followed.

"Feb. 17th. The tenderness having subsided, I removed the bandage, repeated the operation in the same manner, choosing a different point of puncture, and re-applied the dressing.

"March 11th. Repeated the operation, and dressed as before: mobility scarcely perceptible.

"March 21st. Dressings removed, union perfect. In this case the dressings were continued nearly seven weeks; but it is probable that the last perforation and dressing might have been omitted."

Cases III. and IV. I have the satisfaction of being able to insert here, two cases kindly furnished by my honored and venerable friend, Prof. R. D. Mussey, of the Miami Medical College, Cincinnati. Although treated in a manner somewhat different from mine, particularly in what relates to making an incision; they entirely confirm the principles which I seek to establish:—

"My Dear Sir,—Before I left Cincinnati, I was too much pressed for time to look up the statistics of the cases of ununited fracture, scanty as they were; and what I can now give is only from recollection.

"One was in a young man, twenty-five to thirty years of age, from a compound fracture of both bones of the leg, about four inches above the ankle joint. There was still some discharge, and the fracture was loose and very movable, when I was called in consultation, which, as nearly as I can recollect, was four months after the injury. I perforated the extremities of the two fragments of the tibia in several directions, carrying the drill or borer from one fragment through the space or soft material between the two, into the other. The borer, at its extremity, was about one-eighth of an inch in diameter. The punctures through the integuments down to the bone, made with a narrow bistoury, were closed with collodion plaster. Some pain and tenderness of the parts followed, and lasted several days. In three weeks there was less mobility, but I thought it best to repeat the operation. I did not see the patient afterwards, but learned from his professional attendant that the case was making favorable progress. In a few weeks the patient took a journey, after which the report was that the fracture was perfectly consolidated.

"Since this time, over a year and a half, I have repeatedly heard that he was quite well.

"The other case was that of a young man of twenty years or over, a simple ununited fracture of the humerus, in the middle third, of several months standing. I cannot be confident as to the exact length of time.

"I operated as in the first case. *No pain* nor considerable swelling followed. The arm was supported by a splint and bandage, and in three weeks the mobility was much lessened. In six weeks from the operation there was so little mobility that I allowed the patient to return to his friends, in a distant part of the State.

"In five or six weeks, he wrote me that the fracture was not perfectly consolidated. In reply, I advised him to let it alone, and if in a few weeks it should not prove to be sound, to inform me.

"As I have not heard from him since, now more than a year, I infer that he is well. Truly yours,

R. D. MUSSEY."

Case V. This was a fracture of the lower jaw, from the kick of a horse, which happened on the 10th July, 1853. The fracture was situated near the symphysis of the bone, and was oblique. Owing to the irregularity of the teeth, and to movements which the patient could not prevent, the union was effected very slowly.

There existed a cicatrix, the result of a burn, on the anterior surface of the neck. This bound the chin to the superior extremity of the sternum, and prevented the application of a bandage upon the jaw; hence it was moved by every motion of the head. It was for this cause that no dressing had been applied immediately after the accident.

At the end of five weeks, the fragments were still perfectly movable. At this time, August 14th, I perforated them obliquely, to the line of fracture, with a small-sized instrument, piercing the bone at several different points. Two weeks afterwards there was much firmness, and at the end of six weeks, October 1st, there was no longer any perceptible movement of the fragments. In the course of this period, the operation had been repeated four times in the same manner.

Case VI. This case is reported by Dr. Harvey Jewett, of Canandaigua, New York, in the Buffalo Medical Journal for May, 1853, page 738, and is as follows:—

"Mr. P. *æt.* 30, on the 31st September had both bones of the leg broken by being caught under a large stone; the tibia, one-third distant from the upper, and the fibula, one-third from the lower extremity.

"The ordinary dressings were applied at the time of the accident, and the limb put upon the inclined plane. About the twelfth day after the accident, the dressings were loosened by the patient, and were allowed to remain so for three days, when they were again secured by the attending physician. At the end of the twelfth week the dressings were removed. The ankle and foot were œdematous, the fibula was firm, but not the slightest evidence of bony union in the tibial fracture. I procured a long, straight awl, the ordinary pegging awl being too short for the purpose, and introduced it between the fragments, and made six or seven perforations, the lower; and, without removing it from the skin, bored the end of the upper fragment in the same way. The limb was secured, the patient put upon a generous diet, with an occasional glass of porter.

"At the end of two weeks, a second perforation was made in the same manner, and the leg firmly secured with splints as before. After ten weeks the dressings were removed, and the union complete."

Dr. Jewett remarks upon this case, that "the simplicity, safety, and ease with which this operation is performed, compared with other modes proposed for the relief of such cases, if it be equally effectual, certainly commends itself to our consideration and regard. The pain of the operation is comparatively slight, it is attended with no hæmorrhage, and the suppurative process which tends to convert the effused blastema into pus, is wholly obviated.

"The result of this simple experiment, thus far, has been highly satisfactory, and I trust will be faithfully tested whenever such cases present themselves to the surgeon."

Case VII. is also furnished me by the kindness of Dr. Jewett. It occurred in his service in the hospital of the alms-house of Ontario Co. New York.

"*Canandaigua, June 24th*, 1854.

"My Dear Doctor,—I take great pleasure in sending you a brief report of the following case of subcutaneous perforation for ununited fracture of the tibia.

"It is another of the practical facts showing the success attendant upon your method of treating this class of cases.

"Terrence O'Donnel, aged 45, an Irish laborer, of good constitution, had both bones of his leg broken in October, 1853, by being caught under the cow-catcher of a railroad car.

"The fracture was dressed at the time of the accident,—by Drs. Brown and Cheney, who removed some small fragments of the tibia,—and in due time was put upon the straight splint, and securely fastened in its place.

"At the end of four weeks, the dressings were removed. The fibula was apparently united, but no union had taken place in the tibia. The dressings were again applied, and allowed to remain three weeks, without success. During the progress of this case various expedients, such as pressure and rubbing the ends of the bones together, were resorted to, in the hope of promoting a union; but every thing proved unavailing.

"At the end of five months the patient was taken to the alms-house, where he came under my charge.

"I at once perforated the fragments, as recommended by yourself, and practiced in a previous case.

"The limb was immovably fixed, as before, and allowed to remain twenty days. The splints were then removed, and the patient was delighted to find the bone sufficiently firm to sustain the weight of the foot, without yielding in the slightest degree. Another perforation was deemed unnecessary; and the patient in a few days was put upon crutches, with light splints, and in four weeks from the time of the operation, was discharged from the hospital, cured, except the stiffness of the knee and the ankle joint, the effect of the long confinement.

"The success of this single perforation is most gratifying, inasmuch as it shows how readily nature responds to this simple process for the restoration of non-consolidated fractures.

"Not the least change was made in the application of the same apparatus that had been used for five months without success.

With great respect,
I am very truly yours,
HARVEY JEWETT.

"Prof. D. Brainard, M.D., Chicago."

CHAPTER IX.

THE APPLICATION OF PERFORATION OF THE BONES TO THE CURE OF CERTAIN DEFORMITIES, BY MEANS OF INTERSTITIAL FRACTURE, OR BENDING.

When examining the bones of dogs, which had been perforated with a view to the effect of the wound upon the production of callus, I noticed that some of them bent upon the application of only a slight force, and broke if the force were increased, like a green stick, by a sort of interstitial fracture. Observing that this was due not only to the perforation of the bone, which by removing a part of its substance weakened it, but also to the inflammation which had affected the substance of the bone, ren-

dering its shaft thicker, and its tissue less compact and more vascular, the thought occurred to me of applying it as a remedy for certain deformities of bones, by effecting a partial fracture, with a slight force, without dividing the periosteum. For the purpose of determining the practicability of this method, I instituted the following experiments, in addition to those already related:—

1st. I perforated the radius and ulna of a young dog, about the middle, making two perforations in each, and denuding them somewhat of the periosteum. At the end of eight days, I endeavored to bend the bones with my hands. They bent slightly, without any sound, and then, with but a slight degree of force, broke. The immovable apparatus, with a slightly angular splint, was applied to it. The animal was killed before consolidation had taken place, and the following appearances were noticed. The bone was much enlarged, flexible upon the application of but very slight force, and so soft near the point of fracture as to be readily perforated. (See Fig. 10, Plate 1.)

2d. The radius and ulna of another dog were perforated in a similar manner. At the end of six days, I applied force with the hands to bend them; and this was very readily done, with but moderate power. A slight cracking sensation, however, was perceived. The limb was dressed with an angular splint. At the end of thirteen days the fracture was found perfectly consolidated, without any appearance of callus upon the surface of the bone. The periosteum of each bone was undivided, except at a very small point upon the projecting side of the angle. The fracture of the radius was imperfect, but extended nearly through the substance of the bone. That of the ulna was also imperfect, and about one third of the bone, upon the concave side of the angle, was not broken at all, but simply bent. This experiment shows the slight effects and speedy reparation of a partial fracture, without division of the periosteum or displacement of the fragments, in comparison with a perfect fracture like that in the preceding experiment. In both cases the fracture was unattended with pain or displacement. It will be perceived that the bones which have been perforated are brittle, like those affected with certain diseases, as rachitis, etc.

Notwithstanding the numerous disadvantages of applying dressings upon dogs or rabbits, for the purpose of bending bones, the experiments which I have related are regarded as establishing the following facts:—

1st. Perforation of bone may be employed to weaken it in such a manner as to cause it to fracture readily, at the point desired, with but a moderate degree of force, and but little pain.

2d. It may be employed in the same manner, so that the bone may be bent in part, and only fracture in some of its fibers, without division of the periosteum.

It may undoubtedly be employed in such a manner that, by the gradual application of force, the bone may be bent, without breaking, like an imperfectly consolidated fracture, when this is desirable. It is most probable that the pressure required for this purpose would be more painful, and the symptoms resulting from it more severe, than those arising from a partial fracture.

In view of these advantages, it is proposed as a remedy for certain deformities difficult of cure, and a substitute for several severe operations.

The cases in which it is proposed to apply it are,—

1. Perfect anchylosis by bone, or fibrous adhesions too firm to be separated by moderate force, and where the member is in a position to be useless. In this case its use is recommended with a view of straightening the member, where the original disease has been entirely removed.

2. Fractures united in such a position as to render the limb useless, or from angularity of the fragments, greatly to incommode the patient. In this case, it is also employed for the purpose of straightening the member, after consolidation is perfect.

3. Deformity from rachitis, and mollities ossium, where the disease giving rise to the deformity, has been perfectly cured.

4. For the purpose of facilitating the fracture of the femur, and formation of a false joint, in case of anchylosis of that bone with the pelvis.

This method of treatment is recommended as a substitute for the following, which are now in vogue:—

1. The operation of Barton, which consists in making incisions, sawing out a wedge of bone, fracturing the remainder, and then gradually extending it. It is easy, with the perforator, to divide half or two thirds of the bone, and fracture the remainder by force, systematically and gradually applied; thus substituting a simple fracture for a compound one, and conducting the subsequent treatment of extension in the manner required.

Dr. Buck has recently performed a modification of Barton's operation for bony anchylosis, by re-secting the articulation of

the knee; an operation which I suppose may likewise be superseded by partial sub-cutaneous division of the bone.

2. That other operation of Barton, which consists in cutting down upon the upper part of the femur, and sawing it through, for the purpose of establishing a false articulation.

3. Every kind of apparatus or means of violent extension, such as the machine of Loubrier applied in the cases before mentioned.

Its superiority to the operations mentioned, provided it can be rendered effectual, will scarcely be doubted by any one; for whatever liability there may be to accident from the operation, it must be greatly less than that resulting from either of the processes mentioned, less dangerous even than a simple fracture. Indeed, if its effect, when used upon ununited fractures, can be taken as an index, only a moderate degree of inflammation may be expected to result from its application.

In regard to the two operations of Barton, M. Bonnet,* of Lyons, thinks that neither of them is justifiable. In reference to that which has for its object the formation of a false joint near the hip, this opinion seems unquestionably correct; since, in the case reported by Dr. Barton, union eventually took place; and we are aware of one instance, in which the operation was performed by Dr. Post, of New York, where death was the result.

In regard to the other operation, this opinion is perhaps more questionable. As to forced extension, it is only in cases where this is inapplicable, and contra-indicated, that we propose to apply the method of subcutaneous division.

Method of applying the treatment.

The method of applying the treatment will depend upon the object to be attained. When it is required to weaken the bone as much as possible, in order to facilitate its fracture, it will only be necessary to perforate it several times in one direction, and then, withdrawing the instrument, repeat the perforation from another point. If the instrument be of a suitable size, proportioned to the dimension of the bone, five perforations, from two sides, will divide about two-thirds of its substance. The inflammation which will be excited will, in a few days, soften the other third, and render the fracture very easy.

* Traité de Thérapeutique des Maladies Articulaires. Paris, 1853, p. 308.

The manner of making the perforations will be easily understood by a glance at fig. 6, plate 2, which represents a section of a bone treated in that manner. I think, however, that it may be advisable to make these perforations at different times to avoid too much inflammation, and to wait about six days after the last operation before fracturing the bone, in order to give the wound time to heal, and the bony tissue to soften on the sides of the perforations, which weakens it still more.

If it were desired to effect but a partial fracture, the perforations and weakening should be made mostly on one side, and the same rules followed as in the other case. It is preferable that, in some cases, the fracture should take place slowly, and be effected by means of an apparatus moved by a screw.

When the object is merely to bend the bone, I should recommend, that the perforations be made at three different points, and repeated from time to time with instruments of smaller size, until the enlargement and softening have thoroughly been effected; and then the gradual application of force, by means of a suitable apparatus, making superficial perforations to soften the surface and prevent the danger of fracture. I have tried it on the dead subject; and found that four perforations in one direction and three in another enabled me to break the femur by simply placing a support under the middle of it, and striking the extremity of it at the knee, with the palm of the hand, with moderate force.

The ease with which the fracture was in this case effected, led me to suspect that the bone might be unnaturally fragile; but granting this were true, it would not be more so than one in its normal state, perforated in a similar manner, and allowed to remain until affected by inflammation before the force is applied. As I have before stated, the bone is thus rendered much more fragile than in its natural state. In addition to the application of this method, as already described, I may say, in closing, that I have employed it for simple perforation of bone, in inflammation tending to abscess. In a case of this kind, where the disease was situated on the internal surface of the tibia, below the knee, two perforations gave relief from a violent pain, without giving rise to suppuration.

Fig. 1.

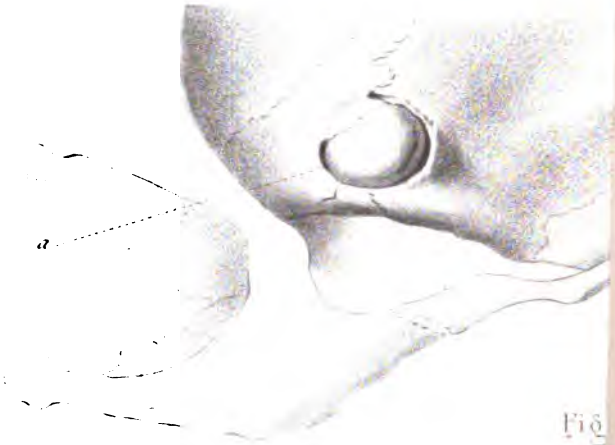

Fig. 4.

Fig. 5.

Fig. 6.

EXPLANATION OF THE PLATES.

Plate 1.

Fig. 1.—Represents a piece from the Museum of Val-de-Grace, wing a ball lodged in the left wing of the sphenoid bone, and aining there without suppuration.

a. The dark line around the ball, shows the tendency to abption which generally takes place in such cases. There is no ostosis.

Fig. 2.—Humerus inclosing in its head and neck a ball, which d produced absorption of the bone to a great extent. No apparance of callus.

a. Cavity containing ball.

Fig. 3.—Lower ends of the tibia and fibula of a dog, showing ne effect of a woolen seton which had remained in contact with he bones twenty-nine days.

a. Notch produced by absorption.

b. Portion of the bone in a state of necrosis.

Fig. 4.—Lower ends of the tibia and fibula of a dog, showing the effect of a silk seton remaining twenty-nine days.

a. A notch in the bones, perfectly smooth, without necrosis or exostosis.

Fig. 5.—Radius of a dog, in contact with which a cotton seton has remained eighteen days.

a. Notch produced.

b. Point of perforation three days before the dog was killed, showing that the opening is filled up, and the bone around it more vascular than natural.

Fig. 6.—Radius of a dog, showing the effect of an iron wire, producing suppuration.

a. Notch produced by a wire remaining ten days in contact with the bone. Eight days had elapsed after the wire had fallen out, before the death of the dog, and the notch is partially filled up.

b. Slight irregularity produced by scratching the bone and separating the periosteum.

Fig. 7.—Tibia and fibula of a dog, exhibiting the effect of perforation on the tibia.

a a. Tubercles of callus formed at the end of eighteen days after perforation of the tibia.

Fig. 8.—Tibia of a dog, which had been perforated and a piece of wood inserted in the opening.

a. Hole in which a piece of wood had remained eighteen days. This opening is three times larger than the perforation at first made. The piece of wood which had been forced into the perforation, was found lying loose in it, and surrounded by pus. The borders of the opening are smooth and rounded.

Fig. 9.—Ulna and radius of a dog, crooked one week after being perforated in several directions. The dog was killed thirteen days after the bending of the bone.

a. Point of perforation, showing enlargement, fracture of a part in the convex side, which could only be perceived after the division of the periosteum; bending of a part in the concavity, without fracture.

Fig. 10.—Radius and ulna of a dog, broken one week after they had been perforated in several directions. The dog was killed before union had taken place.

a. Point of perforation, showing enlargement, and fracture which had not divided the periosteum.

Fig. 11.—Clavicle in Musée Dupuytren, showing ununited fracture.

a. False joint; the surfaces covered with cartilage.

b. The point of the perforation, showing the application of the instrument on such a case.

Fig. 12.—Part of the tibia of a dog, showing the effect of perforation of bone with the introduction of fluids.

a. Perforation into which a solution of iodine had been injected, showing the state of the bone eighteen days after the operation. The hole is imperfectly filled up, and there is no callus on the surface.

b. Perforation into which a solution of lactate of iron had been introduced, showing its appearance eighteen days after the operation. The hole is filled up, leaving a depression on the surface.

d. Guard, to prevent wound of the soft parts, after transfixing the bone. It is movable, and fixed by a thumb-screw, to adapt it to bones of different dimensions.

e. Four perforations, made in one direction, with but a single puncture of the soft parts.

f. The application of the instrument upon the side, showing the manner in which the section may be rendered more extensive.

Fig. 7.—This shows the application of the perforator on fracture of the tibia. By a single perforation of the skin the fragments may be transfixed as often as may be desired, without withdrawing it.

AN ACCOUNT

OF THE

RAILROAD DISASTER

AT

NORWALK, CONN.

WITH

BIOGRAPHICAL SKETCHES

OF THOSE GENTLEMEN (MEMBERS OF THE AM. MED. ASSOC.) WHO LOST THEIR LIVES ON THAT OCCASION.

PREPARED BY ORDER OF THE

AMERICAN MEDICAL ASSOCIATION.

AN ACCOUNT OF THE RAILROAD DISASTER AT NORWALK, CONN., WITH BIOGRAPHICAL SKETCHES OF THOSE GENTLEMEN (MEMBERS OF THE AM. MED. ASSOC.) WHO LOST THEIR LIVES ON THAT OCCASION.

At a meeting held in the city of New York on the 12th of May, 1853, "of such members of the American Medical Association as reside in the city and its vicinity, and such as were remaining here from abroad, convened for the purpose of expressing their feelings respecting the disaster on the New York and New Haven railroad, at Norwalk, in Connecticut, which resulted in the death of so many valued members of the Association," a Committee was appointed "to devise some suitable method of commemorating the event, and the worth and professional character of our lamented associates, and to recommend said plan to the next annual meeting of the Association." The Committee so appointed, reported to the Association that, in their opinion, "the most appropriate method of carrying into effect the objects had in view, would be the preparing a Narrative of the event, together with a brief Biographical Sketch of each individual,—such narrative and biographical memoirs to be published in the next volume of the Transactions of the Association." The Association having approved of and adopted the plan proposed, and referred the matter back to the Committee with authority to accomplish the same, it now only remains to discharge the duty assigned them.

The materials for the accompanying Biographical Sketches have been derived, for the most part, from the relatives and friends of the deceased; and the language used by the writers has, in most instances, been retained. They have been arranged according to the seniority of the subjects.

JOSEPH M. SMITH, M. D.
EDWARD L. BEADLE, M. D. } *Committee.*

NARRATIVE.

The event to be commemorated took place on Friday morning, May 6th, 1853, the day after the adjournment of the sixth annual meeting of the American Medical Association, held in the city of New York.

The place of the disaster was at Norwalk, in Connecticut, on the New York and New Haven railroad; and it was caused by the draw-bridge over the Norwalk river being open, whereby a number of the passenger cars, running at a rapid rate, were precipitated and submerged in the river.

The details of this sad affair are believed to be so generally known, as to render any recapitulation of them at this distant period unnecessary; suffice it to say, that by it forty-four passengers of the ill-fated train were suddenly deprived of life, and that among the number were seven physicians, members of the American Medical Association, all of them gentlemen of great excellence of personal character, and of high standing in the profession.

BIOGRAPHICAL SKETCHES

OF

ARCHIBALD WELCH, M. D.
OF HARTFORD, CONN.

ABEL LAWRENCE PEIRSON, M. D.
OF SALEM, MASS.

WILLIAM CECIL DWIGHT, M. D.
OF MOSCOW, NEW YORK,

SAMUEL BEACH, M. D.
OF BRIDGEPORT, CONN.

JOSIAH BARTLETT, M. D.
OF STRATHAM, N. H.

JAMES M. SMITH, M. D.
OF SPRINGFIELD, MASS.

JAMES HARRISON GRAY, M. D.
OF SPRINGFIELD, MASS.

ARCHIBALD WELCH, M. D.

OF HARTFORD, CONN.

Dr. Archibald Welch was born in Mansfield, Windham Co., Conn., on the 13th of March, 1794, and was the son of the late Rev. Moses Cook Welch, D. D. His early education was received at the common district school of his native town; but his father, who was an accomplished scholar, instructed him in the languages and higher English branches; and from the uncommon tact and precision of the tutor in imparting knowledge, and the quick apprehension of the student in receiving it, may be formed an idea of the extent and finish of his general education.

In the autumn of the year 1813, he commenced his medical studies, under the superintendence of Joseph Palmer, M. D., at Ashford, Conn., with whom he remained during three years,

except the time spent in attending two courses of lectures at the Medical Institution of Yale College. At the close of the second lecture term, in January, 1816, the time which he had spent in the study of his profession was not sufficient to admit him to an examination for a diploma; and on the 16th of the following September, he presented himself for examination before the Board of Censors for Windham county, and received a license to practice. At that time it was his intention to return to New Haven and attend a third course of lectures, and be examined by the Board of Professors and Examining Committee. But severe and protracted sickness in his father's family, prevented the accomplishment of this plan.

In the year 1818, he was married to Miss CYNTHIA HYDE, of Lebanon, who is still living.

"Dr. Welch commenced the practice of medicine in his native town, at the early age of 22 years. And notwithstanding the usual prejudice against employing a young man in such responsible duties as devolve on a physician, he soon received the patronage and confidence of the community to a liberal extent; and these tokens of appreciation and favor with the people, both of his own and neighboring towns, steadily increased and strengthened during the sixteen years he practiced in that place. And when, owing to his frail health and the hardships attending the practice of medicine in a hilly region and among a scattered population, he was induced to exchange his field of labor for one where these hardships would be greatly diminished, his patrons and friends manifested their strong attachment to him, and their appreciation of his services, by using every persuasion, and offering every reasonable inducement to cause him to remain among them. Another reason why he wished to change his place of residence, was that he might thereby secure better advantages for the education of his children than could be had in Mansfield.

"In December, 1832, he accepted an invitation from the late S. B. Woodward, M. D. then of Wethersfield, Conn., to occupy the place he was about to leave; and in the same season, Dr. Welch removed to that town. His reputation as a well-educated and successful physician, his gentlemanly demeanor and pleasing address, at once introduced him into the best families of the place, and won for him the esteem and confidence of the people in his new field. Probably few physicians have enjoyed the esteem and affectionate regard of those with whom they were brought in con-

tact, to a greater extent than did Dr. Welch during the time that he lived in Wethersfield.

"For about ten years of his stay in that village, he had the charge of the medical department of the Connecticut State Prison, under different political administrations."*

In 1836, by the recommendation of the Fellows of the Connecticut Medical Society, he received the honorary degree of M. D. from Yale College.

He continued his stay in Wethersfield for a term of sixteen years; during which period his constant practice greatly impaired his health, and he became convinced that he could not in a country region—however pleasant it might be—properly perform the labors of a physician, and "therefore," as he said, "decided, though with great reluctance, that it was his duty to exchange that post for one which would not make such draughts upon his strength."

When it was known in Wethersfield that he contemplated a removal from the town, the desire of the people that he would remain with them was so strong, that an urgent solicitation to stay was written and presented to him, with the signatures of the members of more than fifty families attached. He, however, had fully resolved to go, and selected Hartford as the place of his future residence. The reason of this choice is given in his own words:—"I did not," he says, "prefer Hartford because I considered it deficient in number or ability of medical men. But being somewhat intimately acquainted with them, and their social and honorable qualities, I was desirous to avail myself of the benefit and pleasure of their society."

He removed to Hartford in December, 1848, and there abode during the remainder of his life. In that city his celebrity increased, so that he became known as one of the most talented physicians, and was rewarded by the confidence and liberal patronage of the community.

In practice, there was no favorite branch which he delighted to pursue to the exclusion of others. Whether in medicine or surgery, he was prepared for whatever he might be called to do. He was as skillful in the operations of the one as judicious in the prescriptions of the other. Yet it must be remarked that

* Biographical Sketch of Archibald Welch, M.D., read before the Hartford Medical Society, by A. W. Barrows, M.D.—*Boston Med. and Surg. Journal.*

he had a constitutional repugnance to operative surgery; and of this feeling, he could never thoroughly rid himself.

He was an honorary member of one or more medical societies of other States, and was an active member of the Connecticut State Medical Society, where he was successively elected Secretary, Vice-President, and President: this latter office he held from May, 1846, to May, 1849. During this period he did much to elevate the science of medicine, and promote the dignity and usefulness of the profession. He delivered the regular annual dissertation before that body in 1837. He was for many years one of the Board of Examiners of the Medical Institution of Yale College, and for a long time one of the Visiting Committee of the Retreat for the Insane at Hartford; and was also repeatedly elected a delegate to the American Medical Association. He was, moreover, twice sent to the Connecticut State Legislature—once as a representative from his native town, Mansfield, and the second time from Wethersfield. He was also a member of the Connecticut Historical Society.

His literary attainments were of a high order; yet it is to be regretted that the productions of his pen are but few. Says Dr. Barrows, "He was accurate and ready in composition, and it is to be lamented that his modesty should have prevented him from doing more in this way for the benefit of others. It was with reluctance that he would consent to appear before the public as a writer or speaker. A few brief articles, principally descriptive of cases that came under his observation, published in the medical journals of the day; a biographical sketch of the late Dr. Silas Fuller; and an address delivered before a graduating class of the Medical Institution of Yale College, are the principal legacies of his pen."

His father, as has already been stated, was a clergyman of great distinction, and still greater usefulness and piety. He was noted for the strength of his mind, the decision of his character, and the eloquence of his oratory. His mother was endowed with a remarkable mildness and amiability of disposition, and gentleness and modesty of deportment. His own character was a happy combination of these admirable traits. He was eminent alike in youth and manhood for his politeness of manners, his refinement of sentiment, his consistent morality, and, above all, his devoted piety.

"Dr. Welch united with the Congregational Church in

Wethersfield, in 1841. He was little disposed to speak of his own religious experience; but the principles of Christianity lay deep in the ground-work of his character, and found expression in his daily life and habits. They were recognized in his business transactions no less than in his family government. There was no demoralizing difference between his professions and his conduct in dealing with men." Truthfulness "was one of the most prominent elements of his character, and gave an individuality to all his thoughts, feelings, and actions." His kindness became proverbial in every community in which he abode. In his intercourse with the sick he deeply interested himself in their welfare, and was distinguished for kindness and gentleness of manner, and unusual self-possession. "Nor were his ministrations confined within strictly professional bounds. The heart of the suffering and sorrowing was touched, by those words of consolation or of warning which none can so well administer as the *Christian* physician."

His hospitality deserves a mention. His friendly greetings of the numerous guests whom he was wont to invite to sit at his table and fireside, were cordial, warm, and sincere. His conversation was cheerful, often humorous, and not unfrequently sparkling with delicate wit, to which his unassuming modesty always gave a delightful fascination. His regard for his profession was high and noble, and for his brethren in the practice unusually affectionate and strong.

In his domestic relations he was a most excellent pattern of a husband and father, and his family was deserving of such a head. His eldest daughter was a lady of the rarest worth; but, to the overwhelming sorrow of her father, she died in the fresh bloom of womanhood, on the 10th of August, 1850. A few days before his passage on the fated train, he visited her grave and sprinkled it with his tears. Soon after, he was laid by her side as her companion in death. By all who knew him his memory is as fondly cherished as his loss was sincerely lamented.

At a meeting of the Hartford Medical Society, May 16th, A. D. 1853, among other resolutions expressive of the estimation in which Dr. Welch was held, the following was unanimously adopted:—

Resolved, That whilst we mourn the loss of our late friend, we fondly cherish his memory, and will strive to emulate his example. In the purity of his life;

in the faithful and conscientious discharge of his duties to the sick and distressed; in the high-minded and honorable course which he pursued towards his professional brethren; in his efforts to sustain the interests of the profession, and to elevate the standard of medical science; and, also, in his endeavors to promote good morals, virtue, and religion, and to discountenance and frown upon vice in all its forms,—he has left us an example well worthy of our imitation.

ABEL LAWRENCE PEIRSON, M. D.

OF SALEM, MASS.

Dr. Peirson was born on the 25th of November, 1794, at Biddeford, in Maine, and was the son of the late Samuel Peirson, Esq. He received his early education at the Academy in the town of Gorham of that State, and at the age of fourteen entered the sophomore class of Harvard University. His graduation took place in 1812, and the degree of doctor of medicine was conferred upon him at that institution, three years after. His studies both in the academy and college, were pursued with industry and hearty zeal; and he was noted for more extensive attainments in his early manhood, than are most men who become erudite and accomplished during the more advanced periods of their lives.

His practice in medicine was begun at Vassalboro, in his native State; but he remained there only a year and a half. It was not only a small town, but remotely situated from experienced physicians; and he desired to be located in a place where he could hold frequent professional intercourse with skillful medical men. He therefore removed to Salem, Mass., early in the year 1817. He there soon acquired the respect and confidence of the community, and gained an elevated position in his profession. Many of his relatives resided in that ancient town; and to his cousin, Miss Harriet Lawrence, a very amiable lady, he was there united in marriage, about the year 1819. He permanently settled and continued his residence in Salem during the remainder of his life.

Dr. Peirson devoted himself more particularly to the practice of surgery than of medicine, although his studies in both departments were continued with great assiduity, until his death. His

skill, decision, and energy, soon acquired for him an enviable reputation as a surgeon; and he had for many years the principal surgery of his section of Essex county; and his counsel was much sought by his professional brethren, whose confidence he enjoyed in a remarkable degree on account of his deportment towards them, which was always fair, generous, and honorable, ever acknowledging merit, and extending with especial pleasure a helping and encouraging hand to the young. He was among the first to become acquainted with *Lænnec's* method of exploring the chest for the physical signs of its diseases; and the thorough knowledge which he acquired of his modes of diagnosis, was exceedingly advantageous to him in the early portion of his practice. He was among the first to appreciate the value of the discovery of the anæsthetic properties of ether, and immediately adopted it. He was the operator in the second amputation ever performed upon a patient under its influence,—and the first in private practice. On the 6th of November, 1846, he witnessed, at the Massachusetts General Hospital, the amputation, by J. C. Warren, of the thigh of the first person to whom ether had been for this purpose administered; and the successful result produced a deep impression upon his mind. On the 19th of the same month, he performed a similar operation upon the arm of a young woman, to whom he administered the ether. The operation was witnessed by several professional gentlemen of Salem, and was eminently successful. On the 21st, he again employed it in a case requiring amputation of the leg, with satisfactory success. From that time, during the whole course of his practice, his confidence in it was never diminished.

Dr. Peirson was active as a Fellow of the Massachusetts Medical Society, and for many years one of its councilors. He was a member of the Essex South District Medical Society, and its president at the time of his death. He was a member also of the American Academy of Arts and Sciences, and for several years one of the consulting physicians of the Massachusetts General Hospital.

He was a ready writer; and though not the author of any extended work, yet the pages of many of the medical periodicals of the day, have been from time to time enriched by the results of his study and observation. He was a man of great thought, and most of the subjects of his contemplation were practical. Most of the fine essays that emanated from his pen, were of the

same character. His judgment was sound, and his discrimination excellent. He was never carried away by novelty, but always ready to admit any thing which promised permanently to advance the dignity and usefulness of his profession.

He was an active, enterprising man, and patriotic citizen always deeply interested in every thing which concerned the welfare of the masses; and the cause of temperance and of popular education, found a ready friend and supporter in him. He was a firm friend of the young, and always ready to extend to them the best advice, the warmest encouragement, and most liberal aid.

His disposition was remarkably social, and in private society he was always a welcome and agreeable companion. He was a cheerful man, and promoted joy in others, not only by uniform example, but friendly and winning exhortation. And, says his first instructor in medicine, Dr. JAMES JACKSON, of Boston, in a brief notice of his character, "He was open-hearted and frank, warm and generous in his feelings, and always faithful in his attachments. He was sagacious in discriminating characters, but was more disposed to praise than to condemn others, and was especially ready to give full credit to his brethren who were his competitors for professional rank."

His sudden and dreadful death made a deep and lasting impression upon the minds of the people of his adopted city; and all felt that they had lost a true man, who had lived for others, and not for himself.

WILLIAM CECIL DWIGHT, M. D.

OF MOSCOW, LIVINGSTON COUNTY, N. Y.

DR. WILLIAM C. DWIGHT was born in Northampton, Massachusetts, in the year 1799. He began his professional studies in the office of the late Dr. FLINT, an eminent physician in his native town, and completed them at the Medical College in New Haven, over which Dr. NATHAN SMITH then presided.

After having received his diploma, he spent a short time in a small town in Massachusetts, and then removed to Moscow, Livingston county, New York, where he resided until his untimely death.

His habits of life were marked by strict temperance, great

industry, and a quenchless thirst for knowledge. He read all that was worth reading, connected with his profession and the arts and sciences thereto related. To do this while his patients were dispersed over a section of country many miles in extent, he accustomed himself to read while riding in his carriage, and even on horseback when the state of the roads compelled him to travel in this manner. He was persuaded that it was impossible for a country practitioner in any other manner to keep pace with the progress of his profession, for he must necessarily spend much of his time upon the road, and unavoidably return home too much fatigued to study to advantage. One of his earliest and most intimate friends in Moscow says of him—"He had an uncommon fondness for books. Indeed, it may be said that it amounted to a passion. This was combined with a quickness of perception, which enabled him to see and appropriate whatever could be useful in his profession, or beneficial to the interests of the community in which he lived." He, accordingly, was not only an excellent physician, but a public-spirited citizen.

His ability to impart his varied knowledge was quite equal to his power to acquire it; and his social disposition and friendly feeling enabled him to exert a wide influence over the people among whom he resided. His loss was, consequently, deeply felt. One of the oldest and most respectable citizens of Moscow, upon hearing it remarked of the doctor, that "no three men could supply his place," rejoined, with out-spoken sincerity and deep earnestness—"No, nor *ten!*"

His practice embraced all branches of his profession; but in surgery, and particularly in that of the eye, he was most dexterous and eminent. By the advice of Dr. M. F. Cogswell, of Hartford, he began to accustom himself, while a student, to use his left hand as well as his right in his operations—a practice found to be attended by most beneficial results. His love for his profession was strong and unceasing, and was equaled only by his detestation of quackery in all its forms and modifications. He never *degraded* himself, as he considered it, by consulting with an irregular practitioner.

He was a subscriber to most of the medical journals of the United States, and an occasional contributor to the Boston Medical and Surgical Journal. He often manifested great mechanical ingenuity in numerous contrivances for the comfort of his patients, though it is not known whether he invented any new surgical

instrument, or improved any of those that are now in common use.

Dr. DWIGHT was among the first in his profession to employ ether in mitigating the sufferings of his patients; and, in a very large number of cases, no deleterious effects were produced. He abandoned the use of ether, however, for that of chloroform; and the essay in which he recorded his experiences of the results of the anæsthetic, in a multitude of instances, was submitted to the committee on prize essays of the American Medical Association, and was deemed worthy of honorable mention by that committee in their report to the Association, made two days before his death.

To his skill as a medical man, he added that of a farmer. About the year 1822 he was seriously afflicted with dyspepsia, and to improve his health by active exercise, became the business agent of a gentleman of New York, the proprietor of large tracts of land in the vicinity of Moscow. Under his superintendence, they were divided into convenient-sized farms, and sold to their first occupants. In this capacity he attained an accurate knowledge of the capabilities of different soils, which his acquaintance with chemistry served still farther to perfect. He was especially unerring in his judgments upon the suitableness of lands for the production of wheat and other grains; and he cultivated two wheat-farms "on shares," overseeing the operations of both himself. He was moreover, a horticulturist and florist. He had a beautiful garden, containing five acres, abounding with almost every variety of fruits, vegetables, and flowers, to which the climate was congenial.

The predominant trait of his character was his uncommon kindness and benevolence, extending to the lowliest. The poor of his neighborhood generally found him to be their best friend. Often, from his own stores, he supplied them with fruits and other delicacies, which they were unable with their own scanty means to procure; and his medical services to them were unfailing and gratuitous. There can be no better eulogy upon his character, than their tears and lamentations over his coffin.

SAMUEL BEACH, M. D.

OF BRIDGEPORT, CONN.

Dr. Samuel Beach was born in Trumbull, Conn., in the year 1802. He was educated in the public schools of his native town, which were of an excellent character; and he studied medicine under the direction of Dr. Jennings, in Derby, of the same State. He obtained his medical degree at Yale College, in the twenty-fourth year of his age; and soon after located himself at Stamford. He remained there, practicing his profession with success, until 1834, when he removed to Bridgeport, where he continued his residence until the period of his sudden death.

His tastes and characteristics are soon described. He devoted himself so exclusively to his profession, that he had little opportunity to become an adept in other sciences and branches of learning. And accordingly, though he was a physician of great reputation and skill, he never aspired to be accomplished in any thing but the science and art of medicine; but his zeal to become thoroughly skilled and competent in his profession, was ardent, noble, and successful. He frequently reported cases for the Medical Journals; yet he had but little taste for general disquisition. A friend of his has remarked that "he wrote little, and that little may not be commended to posterity for any grace of style, or originality and strength of thought; yet if he had cultivated in early life the art of composition, he would have left to the profession the results of his experience, now unhappily lost."

But the measure of what perhaps may be called his lack of polish and refinement in literature, must not be taken from his posthumously published dissertation, which has been quite extensively circulated. He had been appointed to prepare a paper to be read before the State Medical Convention, which met a few weeks after his death. His first crude and imperfect draft of it was found among his papers, after the occurrence of the melancholy accident which terminated his life; and it was supposed, at a hasty glance over its pages, to be ready for delivery. Accordingly, in conformity to a resolution of the Convention, previously passed, a copy was asked for publication; and it is to be regretted that it was printed without due revision. It had not been prepared for the press by Dr. Beach; and it greatly needed, in some

places careful recomposition, and in others critical corrections. As it is, the paper thus prematurely given to the world, has done an almost irretrievable injustice to his sound mind and fair literary education.

His medical practice was of a general nature, such as necessarily constitutes the business of a practitioner in a small city, where surgery is seldom, if ever, separated from medicine. He was skillful in all the details of his profession; and was recognised as one of its most devoted and able members. He was continually honored as a representative in the State Medical Convention.

With regard to his character, it may be remarked that he was not only a man of the strictest veracity and fairest honor, but a consistent and exemplary Christian. His deep-toned piety gave him a great and merited eminence in the church with which he was connected, so that for many years he held the office of deacon. His unwavering integrity, his great moderation, and his unceasing devotion to the duties of a religious life, acquired for him the strong affections of those who were intimately associated with him, and the profound respect of all.

His memory will be sacredly cherished, and the example of his honorable and useful life long felt, by all who knew him.

JOSIAH BARTLETT, M. D.

OF STRATHAM, NEW HAMPSHIRE.

Dr. Josiah Bartlett, son of the late Hon. Ezra Bartlett, of Haverhill, New Hampshire, and grandson of Josiah Bartlett, one of the signers of the Declaration of Independence, was born on the 3d of May, 1803, at Warren, of the same State. His father removed to Haverhill in 1812, that the children might receive the benefits of a classical school.

Having completed his academic education, which embraced a liberal course of study and a thorough mastery of it, he began that of medicine, with his uncle, Dr. John French, of Bath, New Hampshire, and continued it under the direction and instruction of his father. He obtained his medical diploma at Dartmouth College in 1824, and soon afterwards entered into a partnership with his uncle, the late Hon. Josiah Bartlett, of Stratham, N. H.

whose extensive practice he for a long time shared, and the whole of which he eventually received.

He was assiduously devoted to his profession; and the demands upon his time, occasioned by the necessary attentions required in an extensive general practice, were so great as to leave him but few leisure moments for the study of other branches of science than medicine. Yet the extreme favor with which he regarded his own profession in preference to all others, was a sufficient evidence that if time and opportunities for general study had been abundant, he would still have devoted most of his attention to medical research.

He was thoroughly informed on all the fundamental principles of his art, and his reading in general medical literature was known to be extensive. He acquired the habit of perusing treatises of medicine while riding; and thus the many hours of the day spent upon the road, were not lost, as they would otherwise have been.

He creditably filled many offices in the New Hampshire Medical Society, and for a long period was its president. On the occasion of his assuming the responsibility of the chief office, he delivered an address on the History of Medicine. He subsequently prepared a memoir of his uncle, Josiah Bartlett, which was read before the Society, and published by its order.

He was elected a delegate to the last convention for revising the Pharmacopœia U. S. A., and repeatedly sent in the same capacity to the American Medical Association. He was, also, an honorary member of the Rhode Island Medical Society.

His principles of action, and his view of the ambition of physicians for eminence in their profession, are distinctly and happily set forth in a single paragraph of the memoir of his uncle, to which allusion has just been made. He says, "That strife which has for its object the victory of talent, industry, and skill, is honorable, and calculated to advance the dignity and interest of the profession; but that man who seeks prëeminence by calumny and detraction, rather than by self-exertion, deserves, and should receive, the reprobation of the wise and good."

In his living he was strictly temperate, in his habits extremely neat, and in his disposition cheerful and social. To the qualities of a gentleman, a scholar, and a philanthropist, was added the crowning excellence of a devoted Christian. He was a deacon in

the Congregational church, and frequently, in the absence of the pastor, conducted the services of the sanctuary.

> "How beautiful is genius
> When combined with holiness! How sweet the tones
> Of earthly harp when touched by Piety's
> Soft hand, and hung upon Religion's shrine!"

In the hearts of a dearly beloved and greatly bereaved family, a large circle of cordial friends, and a grateful, admiring, and appreciating community, his memory is enshrined.

JAMES M. SMITH, M. D.

OF SPRINGFIELD, MASS.

Dr. James M. Smith, the son of the late Dr. Nathan Smith, professor in the Medical Institution of Yale College, was born in the town of Hanover, in the State of New Hampshire, on the 3d of September, 1805. He received his medical education at Philadelphia and New Haven; and at the latter city obtained his degree, 4th March, 1828. Soon after his graduation he located himself in Westfield, Mass., and there continued to reside and practice his profession for about ten years. At the expiration of this period, viz. in autumn of 1839, he removed to Baltimore, Md., at the request of his brother, Professor N. R. Smith, whose practice he assumed while that gentleman was absent at Lexington.

He fully sustained the reputation of his brother, while he remained there; and had he chosen to fix his permanent abode in Baltimore, he would have soon acquired a most extensive medical and surgical practice. While there, he advised and performed the remarkable and nearly unprecedented operation of amputation, in quick succession, of both thighs, for traumatic injury. This was done wholly within the upper third of both thighs, was entirely successful, and was done without the aid of any anæsthetic agent to obviate the shock.

Although he was highly esteemed in Baltimore, and his reputation and practice were daily increasing, his tastes were such as led him to prefer that his permanent residence should be fixed in the North; and he accordingly settled in Springfield, in the spring of 1840. There he soon came to be regarded with the same favor as in the city he had left, and quickly established himself in successful practice, and was by common consent considered at the head of his profession in Hampden county, until the time of his unexpected and lamentable death.

His consultation practice embraced a very large area, as his opinion was sought in all difficult cases. As a physician, his success was uninterrupted; though as a surgeon it was most remarkable. It is stated by his son, who is also a physician, that during the time of his residence in Springfield, he either performed or was present as senior consulting surgeon at every operation of any importance that was performed in the place or its vicinity; and, what is remarkable, that although his surgical operations were exceedingly numerous and difficult, embracing amputations of the thigh, leg, shoulder joint, forearm, and mamma, tying the femoral artery, operations for hernia, etc., he cannot recollect that he ever from their effects lost a single patient. As an operator, his deliberation and self-possession were subjects of common remark by those who witnessed the triumphs of his skill; and in cases of the greatest emergency, his self-reliance and sound judgment never deserted him. In instances where these qualifications were most needed, he did not make it a question, what has been heretofore done in similar cases, but what can and should be done *now*. One example will sufficiently illustrate his peculiarity of practice in this respect. An operation was needed to be performed upon a fractured forearm with false joint; the condition of the patient, and the extreme difficulty in the way of restoration of the limb, appeared to him to justify the adoption of a new course of treatment. He accordingly performed an operation peculiarly his own, which resulted in the entire cure of his patient, and gained for him an extended reputation among the members of his profession. This case is reported in the "Boston Medical and Surgical Journal" for September 10th, 1851.

As an accoucheur he manifested the same traits of character; and these led him to a more frequent employment of the forceps than is generally recommended; and yet the results were emi-

nently satisfactory. He very early acquired a peculiar adroitness in the use of obstetrical instruments. His success in obstetrics was great; for his manners were so pleasing and his address and tact so ready, that he soon acquired the utmost confidence and kindest regard of every one of his patients.

During his practice in Baltimore he published, in the "American Journal of Medical Sciences," a paper on Necrosis, in which he advocated the necessity of early division of the periosteum, and oftentimes the perforation of the bone, for the purpose of giving an exit to pus. His own cases were striking examples of the benefit of such treatment.

His distinguishing traits of character were a love of perfect truth and honor, and a most profuse generosity: often his acts of benevolence were only known to himself and the recipients of his bounty. For the exercise of these dispositions he will be as long remembered, as for the happy effects of his medical experience and skill.

The unexpected loss of so eminent and worthy a man was deeply deplored by the citizens of Springfield, and justly regarded by them as a public calamity. He was especially lamented by the poor. He had endeared himself to them, not only by his wholesome and gratuitous medical advice, but also by his numerous and liberal benefactions. By all classes of people he was regarded as an honor to his profession, and an ornament to society.

JAMES HARRISON GRAY, M. D.

OF SPRINGFIELD, MASS.

Dr. James Harrison Gray was born in Portsmouth, New Hampshire, in 1819. He was the oldest son of Harrison Gray, a member of the long-established and well-known publishing house of Hilliard & Gray, of Boston.

Dr. Gray's preliminary education was acquired in the Latin School of Boston and the Academy at Exeter, N. H. His father intended that he should graduate at Harvard College; and he was nearly or quite fitted for entrance in that institution when his health, which had always been feeble, and caused many inter-

ruptions to his course of study, became so impaired that, much to his own disappointment and the regret of his friends, it was thought inexpedient for him to attempt the protracted labors and confinement of college life; he accordingly bade adieu to the companions of his studies, and commenced the life, as was supposed, of a merchant.

In order to restore and establish his health, he was sent by his father on excursions about the country. By this means his health was benefited, and he formed those habits of observation and self-reliance which were of great advantage to him afterwards in his profession. In one of these excursions he passed several months at Chicago, Ill. Having been sent to Barnstable, to be under the care of Dr. Henry Tuck, a relative of his mother, and a successful practitioner, he began to read medical books from curiosity and for amusement; but the circumstances in which he was placed soon inspired and strongly fostered a taste for the science, and his desultory reading was changed to systematic professional study. After pursuing for some time his studies with Dr. Tuck, he returned to Boston for private instruction, and to attend medical lectures; here he continued till he received his degree, in 1840, from the Medical School of Harvard College.

Immediately on taking his degree, Dr. Gray began the practice of his profession in Enfield, Mass., a beautiful village about twenty miles from Springfield.

In this little country village of about one thousand inhabitants, entirely among strangers, with a face almost boyish, and a figure that suggested rather the young student than the educated physician, he began to encounter those trials that always beset the path of the young physician; and it can readily be imagined that to him, who had been accustomed to a city life and all the indulgences of affectionate friends, they were neither few nor small. Business, however, came at once, and with it the confidence and respect of the people and of his professional associates.

In 1844 he removed to Springfield, leaving behind him a large country practice, an enviable reputation as a physician, and very many warmly-attached friends.

After the first year of his residence in Springfield his practice rapidly increased, and at the time of his death was large, varied, and lucrative. In consultation his opinion was highly regarded, both in medical and surgical cases.

Dr. GRAY was devoted to the duties of his profession: seldom from home for more than a day or two at a time, he passed a great portion of his leisure hours in his library, where he pursued with diligence the study of surgery, to which branch of the profession he gave himself with more enthusiasm than to any other; but his investigations were not confined to strictly professional matters: he read largely in the various departments of science.

In 1851 he was elected a member of the American Association for the Advancement of Science.

He honored his profession; and his great aim was to keep pace with its progress, and to be found always equal to its demands. He therefore spared neither time nor money in availing himself of the best appliances he could command in his profession, and was thus enabled to profit by every addition made to its accumulated stores.

He united reverence for authority to a conscientious independence of judgment, and gave himself to the treatment of disease, not as the blind follower of established formulas, but as one feeling alike his responsibility and the freedom of his resources.

He was always remembered by the companions of his early studies as a boy of intelligence and remarkable sensitiveness of nature; at a more mature period of life, and particularly after he entered on the duties of his profession, he was characterized by his uniform kindness of heart and gentleness of manner: in these traits of character and his ardent attachment to his profession, lay the secret of his success, as much as in his superior abilities. His sympathies were ever warm and flowing, which familiarity with suffering never blunted; and his words of consolation and cheerfulness for the "mind diseased" were as ready as the remedies for the disorders of the body. His gentleness was almost feminine; and a delicacy of manner and sweet consideration for the inclinations and even whims of his patients, never failed to reconcile them to what might be regarded as harsh in the appliances of his art.

The gloom of the sick-room was not rendered deeper by his presence, but sunshine and serenity rather followed his steps. Few who have ever been under his care but will remember the tenderness of his patient waiting on their wants, and the welcome ministrations of his kindness and skill.

Dr. Gray was in the bloom and full strength of manhood—the enjoyment of almost perfect health, promising a long career of useful labor—with a keen love of scientific studies, rather increasing than declining—blessed with a family that adorned as well as developed the higher beauties of his life—respected and beloved by a wide circle of friends; how hard it is not to think that he died too early! The excellence of his professional character could ill be spared when its best virtues promised a still richer growth; and his reputation must seem incomplete, to those who saw in it the earnest of still wider achievements.

DR. LINTON'S

REMARKS BEFORE THE ASSOCIATION,

AT

ST. LOUIS,

ON THE

IDENTITY OF BILIOUS AND YELLOW FEVERS.

DR. LINTON'S REMARKS BEFORE THE ASSOCIATION, AT ST. LOUIS, ON THE IDENTITY OF BILIOUS AND YELLOW FEVERS.

GENTLEMEN OF THE AMERICAN MEDICAL ASSOCIATION:

I AGREE with Dr. Fenner, that bilious remittent and yellow fever are *specifically* identical; but the causes and nature of these forms of disease, are questions yet to be decided. If they are caused by a miasm generated external to the system, it is certain that marshes and vegetable decomposition are not necessary to the production of this poison; for these fevers have too often prevailed where no such causes existed. The proposition that neither animal nor vegetable decomposition is *necessary* to the production of this malaria, will be questioned by no one acquainted with all, or half, the facts bearing upon the subject. But, is there really a malaria—a positive poison infecting the atmosphere—in those districts where yellow fever prevails? I am disposed to doubt this. This imaginary poison has never been detected; and it would not be easy to show that reason requires its existence to explain the phenomena presented by the so-called malarious diseases. There are causes; but what are these causes?

Yellow fever affects *mostly* the unacclimated, or strangers.

It affects mostly *men* in the active periods of life.

It affects *mostly* the intemperate in eating, drinking, and exercise.

It rarely affects the inmates of prisons.

It is a disease of hot weather.

These propositions are universally admitted. Other characteristics of the disease might be mentioned, but these will suffice for the inference which I shall draw.

It is well known that a richer diet is required by the inhabitants of cold countries and seasons, than by those of hot countries and seasons. It is known that a portion of the food forms the *materiel* of combustion in the system, and is eliminated from it in the form of carbonic acid and water; and direct experiments have shown that, in man, twice as much (and even more) carbonic acid is eliminated at 32° Fahrenheit as at 86°. This, all of us would expect; for twice as much food rich in hydro-carbon is taken in cold latitutes, as in the warm and hot; and twice as much combustion is required in the former as in the latter, for the purpose of keeping up the due amount of animal heat.

According to these facts, is it not clear that northern strangers exposed to a southern sun will suffer the effects of retained hydro-carbon? If a man who eliminates twelve ounces of carbon *per diem* at St. Pauls, on the Mississippi river, should pass suddenly to New Orleans, is it not clear that about one-half of this material would be retained in his blood? Is it not a matter of demonstration that he would be poisoned by the retention of those very matters which, in a cold region, are necessary to health? Now, why may not this poison be the cause of yellow fever? It is proven to exist; and certainly this bilious state of the blood, thus caused, may produce hepatic congestion, portal congestion, jaundice, black vomit, &c. Indeed, the hydro-carbon is the very "*stuff*" of which bile is mainly formed. No wonder that its retention in large quantities should cause bilious fever, and even yellow skin and black vomit.

This view of the cause and nature of yellow fever, explains the fact that strangers from the north are *mostly* affected by it. It explains the fact that those who remain mostly within doors, as old men, and children, and women, are not so liable to it as those who exercise immoderately under a burning sun. It shows how it is that those who have long resided in hot climates mostly escape, and why they do not always escape. It explains the exemption of prisoners from its attacks: they live low, and are not exposed to great heat. In a word, I respectfully submit that this *theory* accords with all the facts. I do not deny the malign influences of bad air and confined air, where it exists. All I say is, that such an external poison is not a *sine qua non* to the production of the disease. When such a state of the air exists, it renders the disease worse than otherwise it would be. Nor do

deny that the retention of other matters may have something o do in causing the disease. Often, too, a person may escape ellow fever by a bilious diarrhœa. The skin also depurates more n hot than in cold climates and seasons. I have stated my views riefly; I shall not take the time to say all I might in their defense. thank you, Gentlemen, for the attention with which you have eard me.

REPORT

OF

THE COMMITTEE OF PUBLICATION,

AND OF

THE TREASURER.

REPORT OF THE COMMITTEE ON PUBLICATION.

THE Committee of Publication respectfully report:—

That of Vol. I. of the Transactions there were on hand, at the date of last Report, ... 67 copies.

Of these there have been sold, ...	13	
Remaining on hand, ...	54	
	—	67

Of Vol. II. there were on hand, at the date of last Report, 29 copies; received since, 2; making . . . . 31 copies.

Of these there have been sold, ...	11	
Remaining on hand, ...	20	
	—	31

Of Vol. III. there were on hand, at the date of last Report, 57 copies.

Of these there have been sold, ...	16	
Remaining on hand, ...	41	
	—	57

Of Vol. IV. there were on hand, at the date of last Report, 28 copies; received since, 1; making . . . . 29 copies.

Of these there have been sold, ...	11	
Remaining on hand, ...	18	
	—	29

Of Vol V. there were on hand, at the date of last Report, 413 copies.

Of these there have been sold, ...	65	
Remaining on hand, ...	348	
	—	413

Of Vol. VI. there were printed, ... 1,000 copies.

Delivered to members, and sold, . . .	755	
Presented to journals, etc., . . .	26	
Remaining on hand, ...	219	
	—	1,000

In presenting their Annual Report, the Committee of Publication avail themselves of the opportunity to return thanks to those members of the Association who have aided them by their personal efforts in promoting the circulation of the Transactions among the physicians of their respective neighborhoods. It is by the exertions of these gentlemen, mainly, that the Committee have been enabled to obtain the funds required to relieve them from the heavy pecuniary responsibility they assumed, when, in the month of May last, they put to press the volume comprising the Transactions of the last Session of the Association, and contracted for the execution of the expensive lithographic drawings with which it is illustrated.

The plan embraced in the resolution of Dr. Charles Hooker, of Connecticut, by which the Delegates from the different States were invited to appoint committees to aid the Committee of Publication in procuring subscribers for, and in distributing, the annual volume of Transactions, has worked well wherever it has been acted upon and properly carried out. The Committee would respectfully recommend its re-adoption by the Association.

Not a little misunderstanding and confusion has resulted from the system which has, heretofore, been pursued, of assessing upon the Delegates in attendance on the sessions of the Association a sum, varying in amount annually, as their quota of the expenses of printing the Transactions of the current year, and then furnishing the volume to individuals and associations taking a certain number of copies, at a price less than the assessment paid by the Delegates. A much better and more equitable plan, the Committee are convinced, would be to fix a certain moderate sum as the permanent annual contribution to the publication fund, to be paid as well by the permanent members as by the Delegates: no one to be allowed to acquire or retain the right of membership who shall refuse or neglect to pay such annual contribution to the Treasurer of the Association, previously to a certain date.

In regard to Delegates, and Members in attendance at the annual sessions of the Association, the payment of the contribution should be required previously to their taking their seats, or being allowed to participate in the business of the session.

The payment of said annual contribution should entitle each Delegate and Member to a copy of the printed Transactions of the session.

The price at which the volume of Transactions of each session

shall be furnished to such as are neither Delegates nor Members, should be fixed, annually, by the Committee of Publication; but in no case to be less than the contribution required of members.

The Committee would suggest the propriety of having the entire edition of the future volumes of the Transactions bound in cloth and lettered, to correspond with the former volumes done up in that manner. The increased expense thus incurred will, the Committee are convinced, be fully compensated by the increased sale of the work,—its improved appearance forming an inducement to many to become purchasers, in whose eyes it has hitherto found, in its plain paper cover, no favor.

The facility with which bound books may now be sent to every portion of the United States by mail, or by expresses to those places to which these latter extend, has done away with the sole object which the Committee of Publication had in view in adopting the paper cover, in preference to having all the volumes neatly bound in cloth.

An edition of 1,000 copies of the last volume of Transactions was printed; the entire cost of which, including all the incidental expenses of the Committee, has been $3,342 66. The amount received by the Treasurer, from all sources, was $3,762 50; from which is to be deducted $126—namely, $18 91, counterfeit notes and discount on uncurrent money, and $107 09, the amount due the Treasurer on the settlement of his account for 1852; the sum of $3,636 50 being thus left subject to the drafts of the Committee of Publication, which it exceeds by $293 84, the balance now in the hands of the Treasurer to the credit of the Association, as will appear by the annexed account of that officer.

In conclusion, the Committee offer the following resolutions for the consideration of the Association:—

Resolved, That the sum of *three dollars*, annually, be assessed upon each of the Delegates to the sessions of the Association, as well as upon each of its permanent members, for the purpose of raising a fund to defray the expense of printing the Transactions. The payment of this assessment shall be required of the Delegates and Members in attendance upon the sessions of the Association, previously to their taking their seats and participating in the business of the session; and of all others, on or before the first day of September, in each year.

Resolved, That each Delegate and Member who has paid his annual assessment, in accordance with the terms of the above resolution, shall be entitled to receive a copy of the printed Transactions of the session.

Resolved, That the name of no one shall be inserted or continued on the list

of permanent members of the Association, who shall refuse or neglect to pay his annual assessment, in accordance with the terms of the first resolution.

Resolved, That it shall be the duty of the Committee of Publication to fix the price at which the printed Transactions of each session will be furnished to others than Delegates and Members: provided, that in no case shall the said price be less than three dollars.

Resolved, That the Delegates to the Association be requested to appoint committees, at one or more central points within their respective States, for the purpose of aiding the Committee of Publication in procuring subscribers, and in distributing the printed volumes of Transactions to said subscribers, as well as to the Members of the Association residing within the neighborhood of the said committees, respectively.

On behalf of the Committee,
D. FRANCIS CONDIE,
Chairman.

April 20, 1854.

REPORT OF TREASURER.

The American Medical Association in account with D. Francis Condie, M. D., Treasurer.

DR.

To cash paid T. K. & P. G. Collins, for printing, paper, and binding Vol. VI. of the Transactions,	$1318 16	
" " Th. Sinclair & Co. for lithographic drawing and printing,	1549 30	
" " Wm. B. Guion for wood engravings,	290 00	
" " Blanchard & Lea for paper for printing lithographs,	80 04	
" " Postage, express parcels, etc.	23 80	
" " Clerk hire,	50 00	
" " Freight, packing-boxes, and other expenses of distribution,	31 36	
" " Drs. W. L. Atlee and W. J. Burnett, as per award of Committee on Prize Essays,	200 00	
" " Discount on uncurrent money, and $8 loss on two counterfeit notes,	18 91	
Balance due Treasurer on the settlement of his accounts for 1852,	107 09	
Balance in favor of the Association, April 21, 1854,	293 84	
		$3962 50

CR.

By cash received from Delegates for assessments, and for Transactions sold, etc.	$3762 50	
" " " Dr. Geo. B. Wood on account of Prize Fund,	200 00	
		$3962 50

PHILADELPHIA, *April* 21, 1854.

Certificate of Auditors, extracted from the ledger of the Treasurer (where it is appended to an account somewhat different from the above).

We have examined the accounts of the Treasurer to April 22d, 1854, with his vouchers, and find them correct, leaving in his hands, this day, a balance of $293 99½, to the credit of the Association.

Signed

GEO. W. NORRIS,
ISAAC HAYS,
G. EMERSON.

CATALOGUE

OF THE

OFFICERS AND PERMANENT MEMBERS

OF THE

AMERICAN MEDICAL ASSOCIATION.

OFFICERS FOR 1854-5.

PRESIDENT.

CHARLES A. POPE, M. D., *Missouri.*

VICE-PRESIDENTS.

E. D. FENNER, M. D., *Louisiana.*
WILLIAM WRAGG, M. D., *South Carolina.*
N. S. DAVIS, M. D., *Illinois.*
JOHN GREEN, M. D., *Massachusetts.*

SECRETARIES.

E. S. LEMOINE, M. D., *Missouri.*
FRANCIS WEST, M. D., *Pennsylvania.*

TREASURER.

ISAAC WOOD, M. D., *New York.*

PERMANENT MEMBERS.

Those who have an obelisk [†] prefixed to their names, are dead.

MAINE.

Chase, Sumner B.	*Portland.*
Fessenden, C. S. D.	*do.*
Garcelon, Alonzo	*Lewiston.*
Lincoln, Isaac	*Brunswick.*
Millet, Charles	*Lewiston, Androscoggin Co.*
Oakes, Sylvester	*Auburn.*
Stockbridge, T. G.	*Bath.*

NEW HAMPSHIRE.

†Bartlett, Josiah	*Stratham.*
Crosby, Dixi	*Hanover.*
Crosby, Josiah	*Manchester, Hillsboro Co.*
Cummings, Silas	*Fitzwilliam.*
Fitch, Francis P.	*Amherst.*
French, Jno. O.	*Chesterfield.*
Peaslee, Edmund R.	*Hanover.*
†Twitchell, Amos	*Keene.*
Twitchell, George B.	*do*
Webster, E. K.	*Boscawen.*

VERMONT.

Allen, C. L.	*Middlebury.*
Cushman, Earl	*Orwell.*
†Hall, Charles	*Burlington.*
Perkins, Joseph	*Castleton.*
Story, Dyer	*West Windsor.*

MASSACHUSETTS.

Adams, Nathan	*Springfield.*
Adams, Z. Boylston	*Boston.*
Ainsworth, F. S.	*do.*

Alden, Ebenezer	*Randolph.*
Allen, Nathan	*Lowell.*
Bacon, John	*Boston.*
Bartlett, George	*do.*
†Batcheller, Stephen	*Royalston.*
Bates, Joseph N.	*Barre.*
Bethune, George A.	*Boston.*
Blake, E. W.	*do.*
Borland, J. Nelson	*do.*
Boutelle, Thomas R.	*Fitchburgh.*
Bowditch, Henry J.	*Boston.*
Brown, Jonathan	*Tewksbury.*
Buck, Ephraim	*Boston.*
Buckingham, Charles E.	*do.*
Chapman, T. L.	*Long Meadow.*
Clark, Henry G.	*Boston.*
Clarke, Moses	*East Cambridge, Middlesex Co.*
Collins, Clarkson T.	*Great Barrington, Berkshire Co.*
Comstock, W. W.	*Middleboro.*
Crane, Phineas M.	*East Boston.*
Dale, William J.	*Boston.*
Dalton, John C.	*Lowell.*
Dearborn, A. D.	*Upper Falls, Newton.*
Dix, John H.	*Boston.*
Ellis, Calvin	*do.*
Fearing, Elisha P.	*Nantucket.*
Fisk, Samuel A.	*Northampton.*
Flint, Edward	*Leicester, Worcester Co.*
Flint, John	*Boston.*
Gay, George H.	*do.*
Gordon, Charles	*do.*
Gordon, Timothy	*Plymouth.*
Gould, Augustus A.	*Boston.*
Green, John	*Worcester.*
†Hale, Enoch	*Boston.*
Haskell, Benjamin	*Rockport.*
Hayward, George	*Boston.*
Heywood, B. F.	*Worcester, Worcester Co.*
Hitchcock, Alfred	*Fitchburgh, Worcester Co.*
Holmes, Christopher C.	*Milton, Norfolk Co.*
Homans, John	*Boston.*

Homans, C. D.	*Boston.*
Hooper, Foster	*Fall River.*
Inches, H. B.	*Boston.*
Jackson, James	*do.*
Jackson, J. B. S.	*do.*
Jarvis, Edward	*Dorchester, Norfolk Co.*
Jeffries, John	*Boston.*
Keep, N. C.	*do.*
Lovell, Ephraim W.	*Boylston.*
Mackie, Andrew	*New Bedford.*
Metcalf, John George	*Mendon, Worcester.*
Minot, Francis	*Boston.*
Morland, William W.	*do.*
Morrill, Samuel	*do.*
Noyes, Josiah	*Needham P. O.*
†Parkman, George	*Boston.*
Parkman, Samuel	*do*
Parks, jun., Luther	*do.*
†Pierson, A. L.	*Salem.*
Pierson, E. B.	*do*
Perkins, Henry C.	*Newburyport.*
Perry, M. S.	*Boston.*
Reynolds, Edward	*do.*
Russell, Le Baron	*do.*
Salisbury, Stephen	*Brookline.*
Shattuck, George C.	*Boston.*
Shurtleff, Nathaniel B.	*do.*
†Smith, James M.	*Springfield.*
Spooner, John P.	*Dorchester.*
Spooner, Paul	*New Bedford.*
Sprague, Seth L.	*Boston.*
Stevens, William F.	*Stoneham.*
Stone, James W.	*Boston.*
Storer, D. Humphreys	*do.*
Townsend, S. D.	*do.*
Ware, Charles E.	*do.*
Ware, Jonathan	*Milton.*
Warren, John C.	*Boston.*
Wheeler, W. G.	*Chelsea.*
Whitridge, W. C.	*New Bedford.*
Wiley, Adams	*Roxbury.*

Workman, William	*Worcester, Worcester Co.*
Woorland, William W.	*Boston.*

RHODE ISLAND.

Clapp, Sylvanus	*Pawtucket.*
Collins, George L.	*Providence.*
Ely, James W. C.	*do.*
Fowler, Ezekiel	*Woonsocket Falls.*
Mauran, Joseph	*Providence.*
Parsons, Usher	*do.*
Rivers, H. W.	*do.*
Snow, Ed. M.	*do.*

CONNECTICUT.

Barrows, A. W.	*Hartford.*
†Beach, Samuel	*Bridgeport.*
Beardsley, Sheldon	*North Branford.*
Beardsley, L. N.	*Milford.*
Bennett, H. N.	*Bridgeport.*
Beresford, S. B.	*Hartford.*
Bishop, E. H.	*New Haven.*
†Bowen, Samuel	*Thompson.*
Bradford, Milton	*Woodstock.*
Brigham, Norman,	*Mansfield.*
Bronson, Henry	*New Haven.*
Brownell, Clarence M.	*East Hartford.*
Canfield, Joel	*Guilford.*
Carrington, E. W.	*Farmington.*
Casey, W. B.	*Middletown.*
Catlin, B. H.	*West Meriden.*
Catlin, Samuel	*Watertown.*
Dickinson, F. L.	*Willington, Tolland Co.*
Hammond, J.	*Killingly.*
Hatch, Johnson C.	*Kent.*
Hawley, Roswell	*New Britain.*
Hooker, Charles	*New Haven.*
Hooker, Worthington	*do.*
Hubbard, S. G.	*do.*
Hubbard, Robert	*Bridgeport.*

Huxley, A. M.	*Goshen, Litchfield Co.*
Ives, Eli	*New Haven.*
Ives, Nathan B.	*do.*
Jarvis, George O.	*Tolland.*
Jewett, P. A.	*New Haven.*
Knight, Jonathan	*do.*
†Lyman, Norman	*Warren.*
Pierson, William S.	*Windsor.*
Pike, N. S.	*Sterling Hill.*
Platt, Gideon L.	*Waterbury.*
Rockwell, P. G.	*do.*
Rogers, Benjamin	*Hartford.*
Russell, Gurdon W.	*do.*
St. John, G. H.	*New Milford.*
Silliman, jun., B.	*New Haven.*
Sumner, George	*Hartford.*
Tallcot, Alvan	*Guilford.*
Warner, Richard	*Cromwell.*
Webb, Reynold	*Madison.*
†Welch, Archibald	*Hartford.*
Welch, Benjamin	*Lakeville.*
White, R. A.	*Simsbury, Hartford Co.*
†Witter, William	*Windham.*
Wood, William	*East Windsor Hill.*
Woodward, Ashbel	*Franklin.*

NEW YORK.

Adams, John G.	*New York.*
Allen, R. L.	*Saratoga Springs.*
Anderson, James	*New York.*
Austin, James M.	*do.*
Baker, jun., A.	*Norwich.*
Barker, B. Fordyce	*New York.*
Batchelder, J. P.	*do.*
Beadle, E. L.	*do.*
Beebe, Seneca	*McDonough, Chenango Co.*
Blakeman, William N.	*New York.*
Blatchford, Thomas W.	*Troy.*
Bolton, Jackson	*New York.*
Bradford, George W.	*Homer, Cortland Co.*

Brinsmade, Thomas C.	*Troy.*
Brooks, P. B.	*Binghamton, Broome Co.*
Buck, Gurdon	*New York.*
Budlong, Caleb	*Frankfort, Herkimer Co.*
Bulkley, Henry D.	*New York.*
Burton, C. V. W.	*Lansingburgh.*
Burwell, Bryant	*Buffalo.*
Burwell, George N.	*do.*
Cammann, G. P.	*New York.*
Carr, Edson	*Canandaigua, Ontario Co.*
Carter, Galen	*New York.*
Chubbuck, H. S.	*Elmira, Chemung Co.*
Church, W. Henry	*New York.*
Clark, Alonzo	*do*
Clements, James W. G.	*do.*
Cock, Thomas	*do.*
Cock, Thomas F.	*do.*
Cockroft, James	*do.*
Corson, J.	*do.*
Crandall, R. O.	*Waverley.*
Dalton, jun., J. C.	*New York.*
Davis, E. H.	*do.*
Dering, Nicoll H.	*Utica.*
Donoughue, E. O'	*Bergen, Genesee Co.*
Downs, Henry S.	*New York.*
Dubois, Abram	*do.*
Earle, Pliny	*do.*
Eastman, N. H.	*Owego.*
Foster, Joel	*New York.*
French, S. H.	*Lisle, Broome Co.*
Gilman, Chandler R.	*New York.*
Greene, Caleb	*Homer, Cortland Co.*
Green, Horace	*New York.*
†Green, Isaac	*do*
Griscom, John H.	*do.*
Hamilton, Frank H.	*Buffalo.*
Hart, John	*New York.*
Hart, Samuel	*Oswego.*
Hawley, Joel E.	*Ithaca.*
Henschell, C.	*New York.*
Hubbard, Samuel T.	*do.*

Jackson, William H.	*New York.*
Jenkins, J. Foster	*do.*
Jewett, Harvey	*Canandaigua.*
Kissam, R. S.	*New York.*
Keene, Stephen S.	*do.*
†Manley, Jas. R.	*do*
March, Alden	*Albany.*
Markoe, T. M.	*New York.*
McCall, John	*Utica.*
McIntyre, A.	*Wayne Co.*
†McNevin, William H.	*New York.*
McPhail, L. C.	*Brooklyn.*
Metcalfe, John T.	*New York.*
Miller, John	*do.*
Miner, William	*do.*
Mitchell, Henry	*Norwich.*
Mixer, S. F.	*Buffalo.*
Moulton, Peter	*New Rochelle, Westchester Co.*
Ogden, Benjamin	*New York.*
Parker, Willard	*do.*
Parker, Edward H.	*do.*
Parmly, Eleazer	*do.*
†Pattison, G. S.	*do*
Peters, George A.	*do.*
Phelps, James L.	*do.*
Pierce, J. B.	*Lyons.*
Pond, James O.	*New York.*
Post, Alfred C.	*do.*
Purdy, J.	*Elmira, Chemung Co.*
Purdy, Samuel A.	*New York.*
Purple, S. S.	*do.*
Raymond, Charles H.	*do.*
Reese, D. Meredith	*do.*
Rockwell, Wm.	*do.*
†Rodgers, J. Kearny,	*do.*
Saunders, A. L.	*Brookfield, Madison Co.*
Sayre, Lewis A.	*New York.*
Skilton, Avery J.	*Troy.*
Smith, Albert	*New Rochelle.*
Smith, Charles D.	*New York.*
Smith, Joseph M.	*do.*

Sprague, J. S:	*Cooperstown, Otsego Co.*
†Stearns, John	*New York.*
Stephenson, Mark	*New York.*
Stewart, James	*do.*
Stewart, Philanda	*Peekskill.*
Taylor, Isaac E.	*New York.*
Taylor, Wm.	*Manlius.*
Tefft, Lake J.	*Onondaga.*
Thompson, Alexander	*Aurora, Cayuga Co.*
Trenor, Jno.	*New York.*
Van Buren, W. H.	*do.*
Van Kleek, John R.	*do.*
Warren, James	*do.*
Watson, John	*do.*
Watts, Robert	*do*
Weeks, Cyrus	*do.*
West, H. S.	*Binghamton, Broome Co.*
White, James P.	*Buffalo.*
White, Oliver	*New York.*
Willard, Augustus	*Green, Chenango Co.*
Winton, Nelson	*Havana, Chemung Co.*
Wood, Isaac,	*New York.*
Wood, James R.	*do.*
Woodward, G. F.	*do.*
Wooster, Joseph	*do.*
Wotkyns, Alfred	*Troy.*

NEW JERSEY.

Brakeley, P. F.	*Belvidere, Warren Co.*
Chetwood, G. R.	*Elizabethtown.*
Clarke, J. Henry	*Newark.*
†Cole, N. W.	*Burlington.*
Condict, Lewis	*Morristown.*
Cooper, Richard M.	*Camden.*
Craig, J. W.	*Plainfield.*
Dougherty, Alexander N.	*Newark.*
Elmer, William	*Bridgetown.*
Rogers, Alexander W.	*Paterson.*
Pennington, Samuel H.	*Newark.*

Schenck, F. S.	*Six Mile Run.*
Smith, Lyndon A.	*Newark.*
Taylor, Othniel H.	*Camden.*

PENNSYLVANIA.

Ashmead, William.	*Germantown.*
Atlee, Washington L.	*Philadelphia.*
Atlee, John L.	*Lancaster.*
Bache, Franklin	*Philadelphia.*
†Baskin, George W.	*Mercer.*
Bell, John	*Philadelphia.*
Biddle, John B.	*do.*
Bridges, Robert	*do.*
Brinton, John B.	*Westchester.*
Bruce, S. D.	*Pittsburg.*
Bryan, James	*Philadelphia.*
†Burrowes, Francis S.	*Lancaster.*
Carpenter, James S.	*Pottsville.*
Carson, Joseph	*Philadelphia.*
Carson, Wm.	*do.*
Cassidy, P.	*Lancaster.*
†Chapman, Nathaniel	*Philadelphia.*
Coates, B. Horner	*do.*
Condie, D. Francis	*do.*
Corson, Hiram	*Plymouth Meeting, Mont. Co.*
†Duffield, Samuel	*Lancaster.*
Foulke, J. L.	*Gwynedd, Montgomery Co.*
Gaston, A. K.	*Chester Co.*
Gazzam, Joseph P.	*Pittsburg.*
Gilbert, David	*Philadelphia.*
†Grant, William R.	*do.*
Hartshorne, Henry	*do.*
Hartshorne, Edward	*do.*
Hatfield, N. L.	*do.*
Hays, Isaac	*do.*
Heister, Frank M.	*Reading.*
Heister, J. P.	*do.*
†Horner, William E.	*Philadelphia.*
†Humes, Samuel	*Lancaster.*
Janney, Benjamin S.	*Philadelphia.*

Jewell, Wilson	*Philadelphia.*
Keneagy, Samuel	*Strasburg, Lancaster Co.*
†Kerfoot, George B.	*Lancaster.*
Klapp, William H.	*Philadelphia.*
Lajus, Paul D.	*do.*
La Roche, Réné	*do.*
Lewis, Samuel	*do.*
Lowman, Jno.	*Johnstown, Cambria Co.*
Mahon, O. S.	*Columbia.*
Mayburry, William	*Philadelphia.*
Meigs, Charles D.	*do.*
Moore, John Wilson	*do.*
†Morton, Samuel George	*do.*
Norris, George W.	*do.*
Ogier, S. A.	*Frazier, Chester Co.*
Parker, Samuel E.	*E. Hempfield, Lancaster Co*
†Parrish, Isaac	*Philadelphia.*
†Patterson, George W.	*do.*
Pepper, William	*do.*
Piper, W. A.	*do.*
Pollock, A. M.	*Pittsburg.*
Powell, F. W.	*Philadelphia.*
†Randolph, Jacob	*do.*
Ream, John	*E. Hempfield.*
Remington, Isaac	*Philadelphia.*
†Rogers, James B.	*do.*
Ross, John D.	*Williamsburgh, Blair Co.*
Ruschenberger, W. S. W.	*Philadelphia.*
Smith, H. H.	*do.*
Smith, Francis G.	*do.*
Stillé, Alfred	*do.*
Stocker, A. E.	*do.*
Thomas, Isaac	*Westchester.*
Thomason, W. D.	*Harrisburg.*
Weidler, Isaac C.	*Seacock P. O., Lancaster Co.*
Wood, George B.	*Philadelphia.*
Wood, Thomas	*Muncy, Lycoming Co.*
Worthington, Wilmer	*Westchester.*
Zeigler, J. L.	*Mountjoy P. O., Lancaster Co.*
Zeigler, George I.	*Philadelphia.*

DELAWARE.

Couper, James	*Newcastle.*
†Smith, Thomas Mackie	*Brandywine.*

MARYLAND.

Davis, William H.	*Baltimore.*
Dawson, James	*St. Michael's, Talbot Co.*
Fonerden, John	*Baltimore.*
Hopkins, Joel	*Elkridge Landing, Howard Co.*
†Jenkins, Solomon M.	*Easton.*
Munkur, John C. S.	*Baltimore.*
Pinckney, Ninian (U. S. N.)	*Easton.*
Riley, William	*Baltimore.*
Roberts, George C. M.	*do.*
Wroth, Peregrine	*Chestertown.*

DISTRICT OF COLUMBIA.

Coolidge, R. H.	*Washington.*
Morgan, James E.	*do.*

VIRGINIA.

Bolton, James	*Richmond.*
Brooks, John N.	*do.*
Browne, O. A.	*Hicksford.*
Burruss, J. L.	*Louisa C. H.*
Cabell, James L.	*University of Virginia.*
Craghead, W. G.	*Danville.*
Gooch, P. Claiborne	*Richmond.*
Haxall, Robert W.	*do.*
Hildreth, E. A.	*Wheeling.*
Joynes, Levin S.	*Accomack C. H.*
Kemper, Charles R.	*Woodville, Rappahannock Co.*
Lee, George	*Leesburg, Loudon Co.*
Lewis, Z.	*King and Queen, Stevensville Post-office.*
†Massie H.	*Charlottesville.*
Mettauer, J. P.	*Prince Edward C. H.*
Morrison, E. A.	*Laurenceville.*
Payne, A. S.	*Paris, Fauquier Co.*

Selden, William	*Norfolk.*
Selden, Henry	*do.*
Spilter, Adam	*Buchanan, Upshire Co.*
Trent, P.	*Richmond.*
†Trigg, Daniel	*Abingdon.*
Worsham, H. C.	*Dinwiddie.*

NORTH CAROLINA.

Belt, H. Singleton	*Winston, Forsyth C. H.*
Dickson, J. H.	*Wilmington.*
Jones, J. B.	*Chapel Hill.*
Thomas, W. G.	*Wilmington.*
Tull, J. G.	*Newbern.*
Warren, W. C.	*Edenton.*

SOUTH CAROLINA.

Bailey, R. S.	*Charleston.*
Crane, Joseph S.	*Columbia.*
Dawson, J. L.	*Charleston.*
Ford, Wm. H.	*do.*
Frost, Henry R.	*do.*
Gaillard, Peter C.	*do.*
Lebby, Robert	*do.*
Lynch, John	*Cheraw.*
May, Jno.	*St. George's P. O.*
Prioleau, Thomas G.	*Charleston.*
Prioleau, J. Ford	*do.*
Ravenel, Wm. C.	*do.*
Robertson, F. M.	*do.*
Robertson, T. T.	*Winnsboro.*
Wragg, William T.	*Charleston.*

GEORGIA.

Kollock, Phineas M.	*Savannah.*
Moore, Richard D.	*Athens.*
Simmons, J. N.	*Griffin.*

ALABAMA.

Clauton, S. W.	*Warsaw.*
Gordon, F. E.	*Marion.*
Merewether, G. M.	*Montgomery.*
Miller, R.	*Mobile.*

LOUISIANA.

Barton, Edward H.	*New Orleans.*
†Carpenter, William M.	*do.*
Fenner, E. D.	*do.*
†Harrison, J.	*do.*

MISSISSIPPI.

Grafton, Thos. J.	*Rodney.*

TENNESSEE.

Bowling, W. K.	*Nashville.*
Clements, H. M.	*Clementsville.*
Dabney, E. R.	*Clarksville.*
Eve, Paul F.	*Ndshville.*
Grant, George	*Memphis.*
Guthrie, C. B.	*do.*
Haggard, Wm. D.	*Gallatin.*
Harris, Zeno	*Memphis.*
Johnston, J. L. C.	*New Providence.*
Lenoir, B. B.	*Roane Co.*
Lindsley, J. B.	*Nashville.*
Lipscomb, Thomas	*Shelbyville.*
Merrill, A. P.	*Memphis.*
Ramsay, Frank A.	*Knoxville.*
Shauks, Lewis	*Memphis.*
Thomas, N. L.	*Longview, Ringgold Post Office, Montgomery Co.*

KENTUCKY.

Allen, Jno. B.	*Lexington (rem. St. Louis, Mo.)*
Breckinridge, R. J.	*Louisville.*

Edwards, R. A.	*Walton, Boone Co.*
Freeman, D. L.	*Floydsburg.*
Gross, S. D.	*Louisville.*
Miller, Henry H.	*do.*
Norwood, Walter A.	*Henderson.*
Ray, L. G.	*Paris, Bourbon Co.*
Sutton, W. L.	*Georgetown.*

OHIO.

Arons, Jno. J.	*Cincinnati.*
†Awl, William M.	*Columbus.*
†Butterfield, J.	*do.*
Carey, Harvey G.	*Dayton.*
Cleaveland, C. H.	*Cincinnati.*
Clements, Joshua	*Dayton.*
Clendenin, William	*Cincinnati.*
Coons, Israel A.	*Dayton.*
Cotton, J. D.	*Marietta.*
Crume, Pliny M.	*Eaton, Preble Co.*
†Drake, Daniel	*Cincinnati.*
Fisher, Elias	*Waynesville, Warren Co.*
Gaston, Ephraim	*Morristown.*
†Harrison, John P.	*Cincinnati.*
Hughes, C. B.	*do.*
Langdon, O. M.	*do.*
McIlvaine, R. R.	*do.*
Mendenhall, George	*do.*
Moxley, M. R.	*Ironton.*
Musgrave, H. B.	*Cincinnati.*
Mussey, Reuben D.	*do.*
†Norton, J. C.	*Marion.*
Robison, J. D.	*Wooster, Wayne Co.*
Sams, C. C.	*Hillsborough.*
Smith, A. C.	*Medina C. H.*
Smith, Samuel M.	*Columbus.*
St. John, Samuel	*Cleveland.*
Taggart, W. W.	*Smithville, Wayne Co.*
Taliaferro, W. I.	*Cincinnati.*
Updegraff, J. T.	*Mount Pleasant.*
Waterman, L. D.	*Cincinnati.*

West, Henry	*St. Clairsville, Belmont Co.*
Wright, M. B.	*Cincinnati.*

INDIANA.

Byford, Wm. H.	*Evansville.*
Dickey, William	*Hagerstown, Wayne Co.*
Holt, Willis W.	*Vincennes.*
Horne, S. S.	*Marion.*
Johnson, Nathan	*Cambridge City, Wayne Co.*
Kersey, Vierling	*Milton.*
Lomax, William	*Marion.*
Maclean, George M.	*New Albany.*
Morgan, Daniel	*Evansville.*
Mothershead, J. L.	*Indianapolis.*
Murphy, Edward	*New Harmony, Posey Co.*
Pennington, Joel	*Milton, Wayne Co.*
Rose, Landon C.	*Laporte.*
Sommes, Joseph	*Vincennes.*

ILLINOIS.

Adams, Nichols	*Quincy.*
Allen, George T.	*Marine.*
Baldwin, S. Y.	*Decatur.*
Bane, Wm. M.	*Payson.*
Bloodgood, James	*Chicago.*
Brainard, D.	*do.*
Bunce, James	*Galesburg.*
Clark, Charles W.	*Rockford.*
Colburn, E. M.	*Peoria.*
Cooper, E. S.	*do.*
Coopins, P. G.	*Fairweather.*
Davis, N. S.	*Chicago.*
Davis, Wm. H.	*La Salle.*
Dickinson, Edward	*Peoria.*
Golleday, H. P.	*Lacon.*
Harrington, W. C.	*Payson.*
Herrick, W. B.	*Chicago.*
Hinsey, Joseph C.	*Pekin.*
King, Joseph	*Decatur.*

Long, S.	*Springfield.*
Mans, Joseph S.	*Pekin.*
Mans, James S.	*do.*
Nance, Hiram	*Lafayette.*
Palmer, A. B.	*Chicago.*
Paddock, S. A.	*Princeton.*
Prince, David	*Jacksonville.*
Quigley, W. C.	*Chicago.*
Ralston, J. W.	*Quincy.*
Robinson, Wm.	*Dover.*
Rogers, T. P.	*Bloomington.*
Rouse, Rudolphus	*Peoria.*
Shepherd, M.	*Payson.*
Skelling, David	*Winchester.*
Stahl, Daniel	*Quincy.*
Stout, Joseph	*Ottawa.*
Stipp, George W.	*Bloomington.*
Thompson, Samuel	*Albion.*
Trowbridge, S. T.	*Decatur.*
Washburn, Thomas	*Lawrenceville.*
Welch, Wm. W.	*La Salle.*
Wood, Wm.	*Cairo.*

MISSOURI.

Adison, Stephen	*St. Louis.*
Alexander, Jno. B.	*Lexington.*
Athurson, J. F.	*do.*
Baines, Jno.	*St. Louis.*
Barrel, R. T.	*do.*
Baumgarten, Fred. E.	*do.*
Chandler, Charles Quarles	*Rockfort.*
Clarke, R.	*St. Louis.*
Coons, A. J.	*do.*
Cooper, D. M.	*do..*
Currie, Wm.	*Jefferson City.*
Edgar, Wm. S.	*St. Louis.*
Engleman, Geo.	*do.*
Golding, Walter S.	*do.*
Hartt, George C.	*Boonville.*
Johnson, George	*St. Louis.*

Lemoine, E. S.	*St. Louis.*
Lewis, R. K.	*Huntsville.*
Magiffin, John	*St. Louis.*
McDowell, Joseph	*do.*
McMurray, John H.	*Independence.*
McPheters, Wm. M.	
Moore, Jno. S.	*St. Louis.*
Moses, S. Gratz	*do.*
Perry, L. P.	*do.*
Peur, George	*Fee-Fee.*
Pollak, S.	*St. Louis.*
Pope, Charles A.	*do.*
Reyburn, Thomas	*do.*
Reynolds, J. W.	*Port William.*
Riley, A. A.	*Fulton.*
Schaenrich, H.	*St. Louis.*
Schœmacher, Hammond	*Milwood.*
Scott, J. W.	*St. Louis.*
Smith, J. D.	*Fayette.*
Stevens, C. W.	*St. Louis.*
Tandy, D. C.	*do.*
Vaughn, Isaac P.	*Glasgow.*
Walker, George S.	*St. Louis.*
Welborn, Jno. C.	*Frankford.*
Wilson, J. W.	*St. Louis.*
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Woodson, John C.	*Spencersburg.*

MICHIGAN.

Allen, J. A.	*Ann Arbor.*
Andrews, J.	*Pawpaw.*
Beech, J. H.	*Coldwater.*
Brodie, Wm.	*Detroit.*
Murray, Andrew	*Niles.*
Paddach, Isaac	*Pontiac.*
Pitcher, Zeno	*Detroit.*
Taylor, Hen.	*Mount Clemens.*
Tripler, C. S.	*Detroit.*

IOWA.

Arnold, Edward A.	*Devanport.*
Elbert, Jno. D.	*Keosauqua, Van Buren Co.*
Ely, Jno. F.	*Cedar Rapids.*
Ford, E. R.	*Keokuk.*
Hughes, J. C.	*do.*
McGugin, D. L.	*do.*
Rauch, J. H.	*Burlington.*
Sanford, John F.	*Keokuk.*
Siveter, Thos.	*Salem.*
Van Patten, N.	*Devanport.*

WISCONSIN.

Bartlett, John K.	*Milwaukie.*
Chapman, C. B.	*Madison.*
Dousman, John B.	*Milwaukie.*
Wilbur, George D.	*Mineral Point.*

UNITED STATES ARMY.

McLaren, A. N.

UNITED STATES NAVY.

Pinckney, Ninian.

MINNESOTA TERRITORY.

Murphy, John H.	*Falls St. Anthony.*

CHEROKEE NATION.

Ross, R. D.	*Grand Sabine.*

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